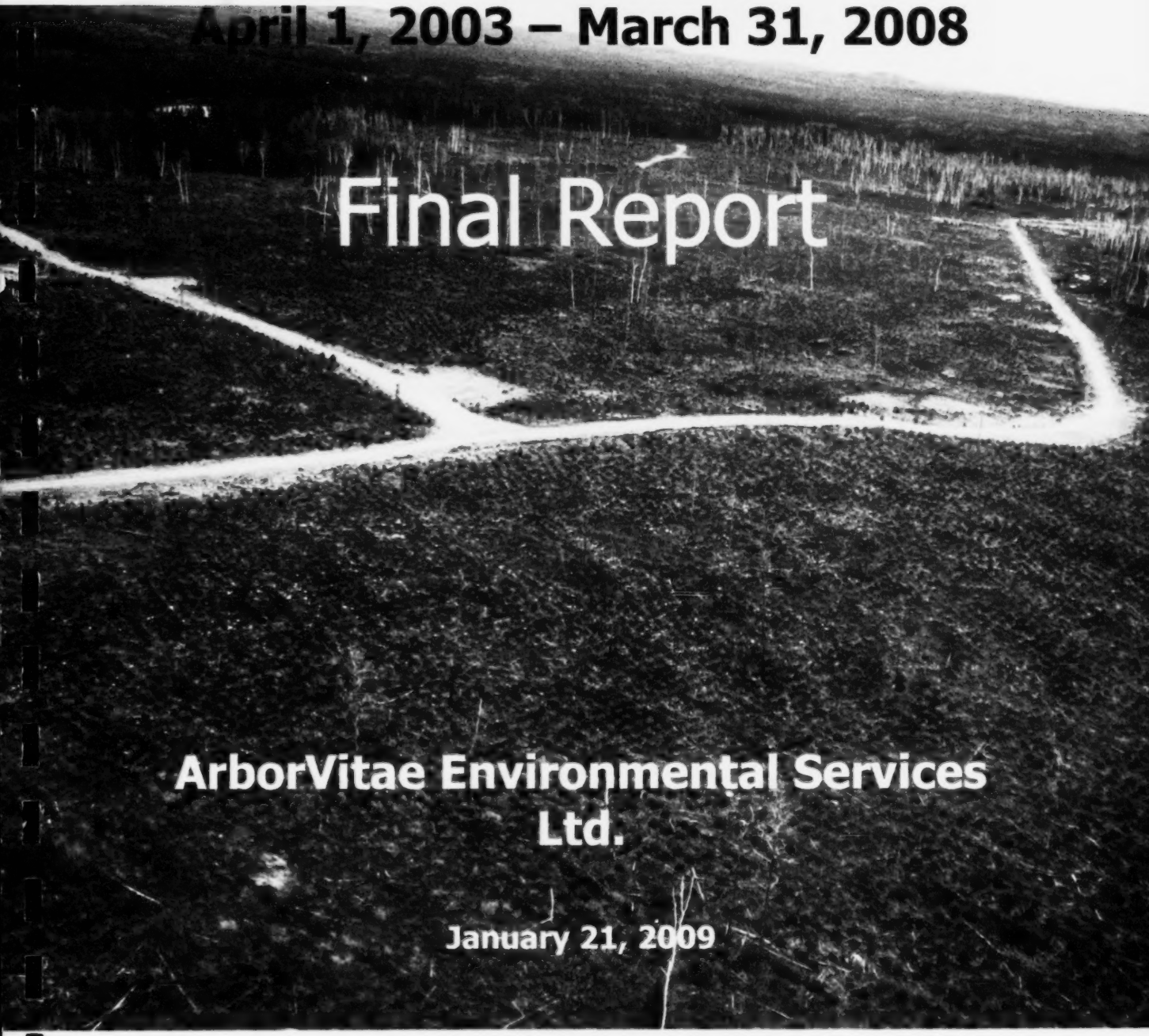
White River Forest
Independent Forest Audit
April 1, 2003 – March 31, 2008



Final Report

ArborVitae Environmental Services Ltd.

January 21, 2009

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1.0 EXECUTIVE SUMMARY

ArborVitae Environmental Services Ltd. performed an independent forest audit (IFA) of the management of the White River Forest for the period April 1, 2003 to March 31, 2008. This is the same time period that was covered by the 2003 Forest Management Plan (FMP). The new 2008 FMP, which has a ten-year period, came into effect on April 24, 2008. The audit does not review the implementation of that plan, but it does evaluate the process of developing it.

The audit was undertaken following the Independent Forest Audit Process and Protocol prepared by the Ministry of Natural Resources (MNR). The audit examined the effectiveness of the strategies employed and the management practices undertaken during the audit term. The audit also examined compliance with the Crown Forest Sustainability Act, the conditions of the licences, and the 2003 FMP.

The audit results are very good on the whole, with a total of 16 recommendations being issued (excluding the concluding recommendation), as well as two best practices. This number of recommendations is well below the 25 recommendations issued for the previous (2003) White River IFA, which was a good audit. We believe that the high level of achievement observed in this audit is due to a variety of factors:

- the commitment of Company and MNR staff, and other stakeholders, including the WRACC, to a high management standard, and the good rapport between the parties;
- a very high quality 2008 FMP which did not raise any major strategic shortcomings (when present, major planning issues often lead to multiple recommendations);
- the continued evolution of forest management leads to improvement, as evidenced by continued emphasis on training, the implementation of new guidelines for forest management (e.g., Natural Disturbance Pattern Emulation Guidelines), the certification of the White River Forest under the National Boreal Standard; and
- the results of the efforts by the Company and MNR to address and correct identified shortcomings, such as were identified in the previous IFA.

The Audit Team felt that the 2008 FMP was worthy of a best practice and commends the planning team for its efforts, as well as the many other contributors to the plan. A second best practice was awarded to the District MNR for its creative and persistent efforts to overcome obstacles which prevented Pic Mobert and Pic River from harvesting timber on the White River Forest.

Of the sixteen recommendations, five were directed solely at the Company, five at District MNR, and two at both of these parties. Four recommendations were directed at Corporate MNR (Northeast Regional office and/or main office Forest Management Branch). All three of the recommendations under plan implementation are directed towards the Company, while three of the recommendations for District MNR were related to the LCC and First Nations, which are both areas of MNR responsibility.

One of the four recommendations for Corporate MNR concerns the hardwood volume commitments, which are based on unattainable target volumes now that it is recognized

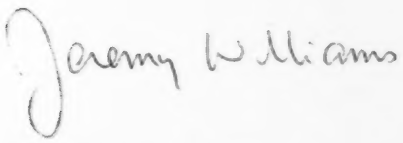
that hardwood yields are significantly lower than previously thought. We have also recommended that the manner in which sustainability is assessed should be reviewed, since the Report on Past Forest Operations and the Trend Analysis both identified that the majority of the indicators they considered could not be meaningfully assessed.

The other two recommendations are for greater funding for District LCCs and values collection. While recommendations to increase funding may not seem to be appropriate at a time when the economy is weak, the audit team feels that the benefits of maintaining the functionality and goodwill of the LCC representatives outweighs the cost of the increase of some several thousand dollars per year per LCC that would likely satisfy the intent of Recommendation # 2. The cost of maintaining updated values would be higher, but again, is on average lower than the costs typically associated with changes to operational plans necessitated by the discovery of a value during operations, and the cost of the paperwork to make the FMP amendment.

One of the key concerns which we had prior to the field audit was that the suspension of Company woodland operations in January 2007 may have left a backlog of untreated area. We assessed the nature and amount of the untreated area, and concluded that an area of roughly 1,080 ha will require artificial regeneration, and possibly tending treatments as well, to bring it to free-to-grow status, in accordance with the applicable SGRs. The backlog area is approximately equal to one-third of the average actual annual harvest area; having this amount of area waiting for treatment is considered to be normal for any forest management unit in Ontario. The funds within the Forest Renewal Trust are just above the minimum required balance and are sufficient to treat all of the outstanding area. The Company conducted seeding operations on the forest in 2007 and tending in 2008, and was thus using the portion of the Forest Renewal Trust above the minimum required balance to undertake some management actions.

The Company's compliance record was very good over the audit term, and there was a very low number of amendments associated with the 2003 FMP. We feel that the general direction of the 2003 FMP was implemented, notwithstanding the large under-harvest that occurred due to the considerable length of time that Domtar's operations in the White River Forest and sawmill were suspended due to poor market conditions.

The audit team concludes that management of the White River Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Domtar (SFL # 550399). Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of Sustainable Forest Licence #550399 for a further five years.



Jeremy Williams, R.P.F.
Lead Auditor

2.0 INTRODUCTION

This document presents the results of the independent forest audit (IFA) of the White River Forest (WRF). The audit covers the period from April 1, 2003 to March 31, 2008, and reviews the performance of Domtar Inc. (referred to as Domtar or the Company throughout this report), and the Ministry of Natural Resources (MNR or the Ministry) in conducting and overseeing all aspects of forest management.

The audit period coincides with the complete term of the 2003 Forest Management Plan (FMP) and so the audit assesses the implementation of the plan and the achievement of its objectives. Because there were a number of difficult issues that arose during the development of the 2003 FMP, mostly related to access, attempting to find an appropriate solution to these problems created difficulties for the planning team. The completion of the 2003 plan was delayed, necessitating a Contingency Forest Management Plan (CFMP). The White River Forest was managed under the CFMP in the early part of the 2003 fiscal year until July 16, the date that the 2003 FMP was approved by the MNR. Therefore, this audit also covers the Company's performance under the Contingency Forest Management plan (CFMP).

The audit period also encompasses the preparation period for the 2008 Forest Management Plan, and so the audit considers the development of that Plan. The audit also reviewed the content of the 2008 FMP, especially as it relates to issues that were identified during the implementation of the 2003 FMP. The Company and MNR responses to recommendations from the previous IFA (also undertaken by ArborVitae Environmental Services Ltd.), which was conducted in 2003, are also audited.

The conifer timber that is harvested from the White River Forest is mainly processed at the White River sawmill, and the White River Forest is the sawmill's main source of supply. The sawmill was originally built in 1977 by Abitibi-Price; in 1984, Domtar purchased the mill and the White River licence was transferred to Domtar. During the audit period, the mill has experienced two periods of closure – one, which lasted from June 2003 to January 2004, was prompted by an oversupply of lumber and attendant poor conditions in the lumber markets. In late 2006, the Weyerhaeuser mill at Limer (near Wawa) announced that it would no longer take hardwood from the White River Forest, due to deteriorating market conditions. In January 2007, Domtar notified its employees at White River that due to poor lumber market conditions and the unfavourable terms of the softwood lumber agreement with the United States, its harvest operations were again suspended, and they remain so at the time of writing (December 2008). The sawmill completed processing the wood in the yard by June 2007 and also shut down indefinitely. Both it and the Limer mill have remained closed through the audit process, and numerous other mills in the region have also closed. In contrast, the third mill with a commitment from the WRF, Columbia Forest Products' mill in Hearst, has and continues to remain open,

As a result, during the five-year audit period, there was effectively three years worth of full-scale harvesting activity on the White River Forest. While this is important context for the audit, it did not greatly affect the audit insofar as the Company has continued to meet its planning and reporting requirements, including the completion of the 2008 FMP. However, the impact has been severe on the town of White River and the neighbouring communities, including Pic Mobert. The 2006 census reported that the town had a

population of 841 people, a decline of 15% from the 2001 population. The workforce had increased from 550 in 2001 to 590 people in 2006. In 2001, the year for which most recent figures were available, 250 were employed in the forest sector. The current population is probably lower than the 2006 level reflecting people leaving to find work.

The team which conducted this audit consisted of four forest auditors, who are all specialists in various aspects of forest management. Appendix B provides details of their qualifications, roles and responsibilities. Forest management in Ontario (and elsewhere) uses a variety of technical terms. We have tried to explain terms as they are used in this document, but readers unfamiliar with the forest management planning process in Ontario are referred to the page on the MNR website titled "Forest Management Planning in Ontario"[1] for further explanations. Appendix D lists the acronyms used in this report.

2.1 AUDIT PROCESS

2.1.1 Purpose and Overview of Audit Process

The Crown Forest Sustainability Act (CFSA) directs the Minister of Natural Resources to conduct a review of each tenure-holder every five years to ensure that the licensee has complied with the terms and conditions of its licence. The Independent Forest Audit contributes to this mandate, as well as complying with the direction to the Ministry laid out in Terms and Conditions #86 and 87 and Appendix 25 of the 1994 Class EA decision to "undertake operational audits, through the appointment of suitably qualified independent Audit Teams, which will include an assessment of compliance with the timber management planning process, approved Timber Management Plans, implementation manuals, and provincial policies, procedures, and legislation". The Declaration Order[2] confirmed the importance of the IFA's, replacing the 1994 Class EA Terms and Conditions #86 & 87 with Condition #28, which imposed some additional conditions on MNR. One of these conditions was for MNR to propose a regulation under the CFSA regarding the conduct of IFA's; MNR duly proposed a regulation which came into force on June 10, 2004 as Ontario Regulation 160/04 under the CFSA.

The scope and process of an IFA is set out in the Independent Forest Audit Process and Protocol (IFAPP), which is maintained by the MNR. The IFAPP, which is reviewed and updated annually, contains more than 150 individual audit procedures.

The IFAPP states that the purpose of the audits is to:

- "assess to what extent forest management planning activities comply with the Forest Management Planning Manual and the [Crown Forest Sustainability] Act;
- assess to what extent forest management planning activities comply with the Act and with the forest management plans, the manuals approved under the Act, and the applicable guides;
- assess the effectiveness of forest management activities in meeting the forest management objectives set out in the forest management plan, as measured in relation to the criteria established for the audit;

[1] Ontario Ministry of Natural Resources.
http://www.mnr.gov.on.ca/en/Business/Forests/2ColumnSubPage/STEL02_163511.html
[2] Declaration Order regarding MNR's Class Environmental Assessment Approval for Forest Management on Crown Lands in Ontario, approved by Order in Council 1389/03 on June 25, 2003.

- compare the forest management activities carried out with those that were planned;
- assess the effectiveness of any action plans implemented to remedy shortcomings revealed by a previous audit; and
- review and assess a licensee's compliance with the terms and conditions of the forest resources licence."

The results of each audit procedure are not reported separately in this report. Rather, they have provided the basis for the discussion in the following sections (primarily Section 3), where noteworthy aspects of the management of the Forest are brought forward. These discussions are followed in some instances by recommendations which are explicitly defined in the IFAPP:

Recommendation - sets out "a high level directional approach to addressing [a] non-conformance. In most cases, recommendations follow from the observation of material non-conformances. In some instances, however, auditors may develop recommendations to address situations where they perceive a critical lack of effectiveness in forest management activities, even though no non-conformance with law or policy has been observed."

Recommendations can be directed towards the Company and/or the Ministry of Natural Resources. Auditees must address all recommendations in follow-up actions.

If the Audit Team feels that an aspect of forest management is exceptional it may be identified as a best practice. The IFAPP provides the following definition:

Best practices – "practices so identified should be 'exceptional', not situations in which forest management is simply meeting a good forest management standard. Highly effective novel approaches to various aspects of forest management may represent best practices. Similarly, applications of established management approaches which achieve remarkable success may represent best practices."

During this audit, the Audit Team found situations which should be corrected by the tenure holder, some which are the responsibility of the MNR District, and some which merit a joint Company-District MNR response. Issues which we believe should be addressed by the Wawa MNR District are addressed in recommendations which simply identify "MNR" or "District MNR". Other situations which we believe need corrective action and which are related to the general framework of forest management in Ontario are more appropriately addressed by the corporate sections of MNR. These situations involve issues that were manifested locally (hence, they surfaced in this audit), but their resolution lies in the Northeast Regional office and/or main office Forest Management Branch of MNR. Recommendations which we believe should be addressed by central branches or sections of MNR identify "Corporate MNR" as having primary responsibility, and are summarized in a separate table at the conclusion of this report.

2.1.2 Process

The IFAPP describes each of the components of the audit process and contains the audit protocol, which constitutes the main framework for the audit. There are eight principles within the audit protocol (reproduced in Appendix C). Each principle contains

a set of criteria, which, if met, will result in the principle being achieved. For each criterion, a number of procedures are used to assess the auditees' compliance and effectiveness.

For the 2008 IFA's, the IFAPP was greatly revised and re-designed. The procedures were aggregated and revised so that there are now about 150 procedures, versus the more than 300 in the previous versions of IFAPP. In addition, the 2008 IFAPP segregates the procedures into three classes:

- "low risk" - strictly administrative in nature;
- "moderate risk" - have an administrative component but also a bearing on sustainability; and
- "high risk" – related to sustainable forest management.

The audit team is required to sample 20 – 30% of the procedures identified as low risk and between 50 – 75% of the procedures considered to be moderate risk. These changes were intended to reduce the auditor and auditee workload and focus the audit on more significant issues.

The audit commenced with the preparation of a detailed audit plan[3], which described the procedures to be used during the audit and assigned responsibilities to members of the Audit Team. A pre-audit meeting was held between representatives of the Audit Team, Domtar, MNR, and the Local Citizens' Committee (LCC). The primary purposes of the meeting were to familiarize the auditees with the audit process, review the Audit Plan, and to select the sites to be inspected in the field during the audit.

The focus of the audit was an intensive six-day site visit, which included the following:

- review of relevant documents provided electronically, and in some cases, in hard copy, by the Company;
- review of relevant documents and correspondence at the Wawa District MNR office;
- interviews with Company staff, MNR personnel based in Wawa, MNR regional staff, members of the LCC, representatives of several of the interested First Nations and other local stakeholders;
- field inspection of many representative sites where forest management activities were undertaken during the term covered by the audit, examining the results of:
    - harvesting and silvicultural operations in a range of forest types on different site types;
    - practices intended to safeguard wildlife, aquatic, and tourism values; and
    - road construction, maintenance, and abandonment practices.

The Audit Team visited a variety of sites throughout the Forest where activities had been undertaken during the audit period. The sites were selected by the Audit Team at a one-half day meeting following the pre-audit meeting, with some minor adjustments afterwards to ensure a balanced sample.

Table 1 shows the total amount of each key activity that took place during the audit period, and the sample size and sampling intensity in the IFA. The IFAPP required the Audit Team to sample at least 10% of the area treated during the audit period for each major activity, such as harvesting, site preparation, and regeneration. Activities that

[3] ArborVitae Environmental Services Ltd. White River Forest Independent Forest Audit Plan, Aug 14, 2008.

carried higher risk or that were only undertaken on relatively small areas were to be sampled more intensively. The audit exceeded the minimum sample size specified in the IFAPP for most activities, with the overall level of sampling ranging between 11 to more than 20% for key activities.

Because the White River Forest

- is a boreal forest, where clearcutting is the dominant harvest practice;
- had been certified under the FSC national boreal standard; and
- harvesting operations were largely conducted by unionized Company staff;

Harvesting was identified as being low risk early in the process. The early audit work did identify that although the company was generally successful at regrowing forest to free-to-grow standards within the prescribed time frame, the forest types that regenerated were not often the intended forest units. While there are many potential contributing factors to this, the audit team increased the sampling intensity for the planting, seeding, and site preparation activities so that it was significantly higher than the minimum level required under IFAPP (See Table 1).

In Table 1, the total in the audit period refers to the areas that were harvested, site prepared, and renewed during the audit period. The next column to the right shows the total area of the treatments viewed during this audit. The sampling intensity is calculated by dividing the area of treatments viewed by the total area (or other relevant measurement statistic) during the five-year period.

Examples of operations were examined in each major forest unit present on the Forest, representing a range of harvesting systems, year of harvest, season of operation, and silvicultural treatment packages. A number of sites where renewal activities had been conducted during the audit period were visited to evaluate the appropriateness and quality of these treatments and to perform an initial evaluation of their effectiveness. These included sites that were site prepared, seeded, planted, and tended, and those for which natural regeneration treatments were prescribed.

The auditors were required to verify in the field at least 10% of the areas reviewed in specified procedures undertaken by KPMG. This review was undertaken for the 2006-07 fiscal year. We verified in the field 21% (850 of 4,002 ha) of the silvicultural activities undertaken by Domtar in the year 2006/07.

Table 1. Sampling intensity of the field operations, by key feature investigated.

Feature	Total in Audit Period *	Total Sampled	Sample Intensity %
Harvest (ha)	14,825	2,528	17
Site Preparation (ha)	4,954	1,287	26
Natural Regeneration (ha)	10,018	1,088	11
Planting (ha)	4,178	827	20
Seeding	1,544	312	20
Tending (ha)	4,346	769	18
Free-to-Grow Assess (ha)	28,637	3,054	11
2006 FRT Areas (ha)	4,002	850	21

Areas of Concern (no.) **	17	10	59
Water Crossings***	approx. 40	16	40
Water Crossings funded by MNR Construction and Maintenance Agreement ****	14	5	36
Primary and Branch Roads (km)	26.1	26.1	100

* Numbers are approximate as the final annual report for FY2007/2008 was not yet due at the time the draft report was completed. Estimated values for 2007/08 are included in the table.
** The 2003 FMP identified 17 different types of AOCs, and scores of individual AOCs were implemented during the audit period. The audit inspected many individual AOCs consisting of 10 of the 17 different types.
*** Includes bridges, rehabilitated culverts and new culvert installations. Does not include cross drains.
**** Of the 26.1 km of primary road constructed during the audit period, approx. 20.6 km (77%) was funded through the MNR's Road Construction and Maintenance Program. Since the audit sampled 100% of the road constructed during the audit period, it also sampled 100% of the road constructed and funded under the MNR's Road Construction and Maintenance Program.

Table 1 is intended to portray an approximate level of effort only. There are several factors which preclude too-precise an interpretation of the figures presented in the table. Although we viewed many individual harvest and/or treatment blocks during the field inspection portion of the audit, more than one aspect of forest management was inspected at some sites. For example, at sites where harvesting had taken place, harvest practices, compliance issues, road construction, Area of Concern (AOC) protection, site preparation, and regeneration activities may all have been inspected. Finally, of the area figures shown in Table 1, it should be noted that we did not inspect every hectare of the blocks we visited – such a level of effort would be infeasible.

In addition to the tasks noted above, effort was devoted to facilitating public input into the audit. From the Ministry's district mailing list, a sample of approximately 300 individuals and groups was sent an invitation to provide input into the audit. In addition, ads were placed in four regional newspapers (from Wawa, Hornepayne, Manitouwadge, and Marathon) and First Nation-based Wawatay News to solicit input. In addition, a public meeting was held on September 16, 2008, in White River during the audit week. There were roughly 15 people in attendance, including roughly 6 LCC members, and there was a good discussion about some of the key issues identified in this report.

2.2 Forest Management Context

2.2.1 Location of the Management Unit

The White River Forest is located in north-central Ontario, centered approximately on the town of White River. The town of White River is approximately 220 km north of Sault Ste. Marie along the Trans-Canada Highway. Nearby communities include Wawa, located roughly 100 km southeast along Highway 17, Hornepayne to the north and Manitouwadge and Marathon, located to the west (Marathon is just south of Highway 17, Manitouwadge is roughly 85 km north of Highway 17). The First Nations community of Mobert is located some 30 km west of White River, on the shore of White Lake. It is inside the boundary of the White River Forest. Pic River First Nation community is located just southeast of Marathon, almost adjacent to Pukaskwa National Park, which

abuts the WRF on the southwest boundary Pukaskwa takes in the landbase between Lake Superior and the western half of the WRF, extending from the westernmost point of WRF to a point halfway between Wawa and Marathon. Figure 1 shows the location of the Forest, surrounding forests, Pukaskwa Park, and some of the local communities. The central location of the town of White River within the Forest is very evident; Highway 101 is marked by the heavy red line that generally runs southeast to northwest through the WRF.

2.2.2 Description of the Forest

Much of discussion in this section is adapted from material provided in the 2008 Forest Management Plan.

The Forest encompasses approximately 6,126 km^2, including all land and water. Of this area, over 99% is owned by the Crown. Table 2 provides a detailed areal description of the Forest. Approximately 5.5% of the Forest is in Provincial Parks or Conservation Reserves. Approximately 4,464 km^2 (86% of the Crown-managed forest and 81% of the total Forest area) is managed production forest.

Table 2. Area (ha) description of the White River Forest (areas from the 2008 FMP).

Land Class	Crown Managed	Parks & Protected Areas***	Patent and Federal	Total
Water	49,561	3,835	44	53,440
Other Non-forested Land	6,102	234	369	6,705
Non-Productive Forest	43,657	3,318	141	47,116
Protection Forest*	31,802	1,537	76	33,415
Production Forest**	446,409	24,923	558	471,890
Total Forest Area	521,868	29,778	776	552,422
Total Area	577,531	33,848	1,188	612,567

* Protection forest includes forests on sensitive soils, and islands.
** Production forest is land capable of supporting forest management.
*** Includes Provincial Parks, and Conservation Reserves as identified through Ontario's Living Legacy

The geography of the Forest is quite variable. In the southern portion of the Forest (within 50 – 60 km of Lake Superior), it is characterized by rough broken topography with hills rising steeply from lakes and river valleys (See Figure 2). As one travels north, the topographical extremes become less drastic, and the land gradually becomes rolling to flat. Some extensive poorly drained lowlands occur in the northeastern portion of the Forest.

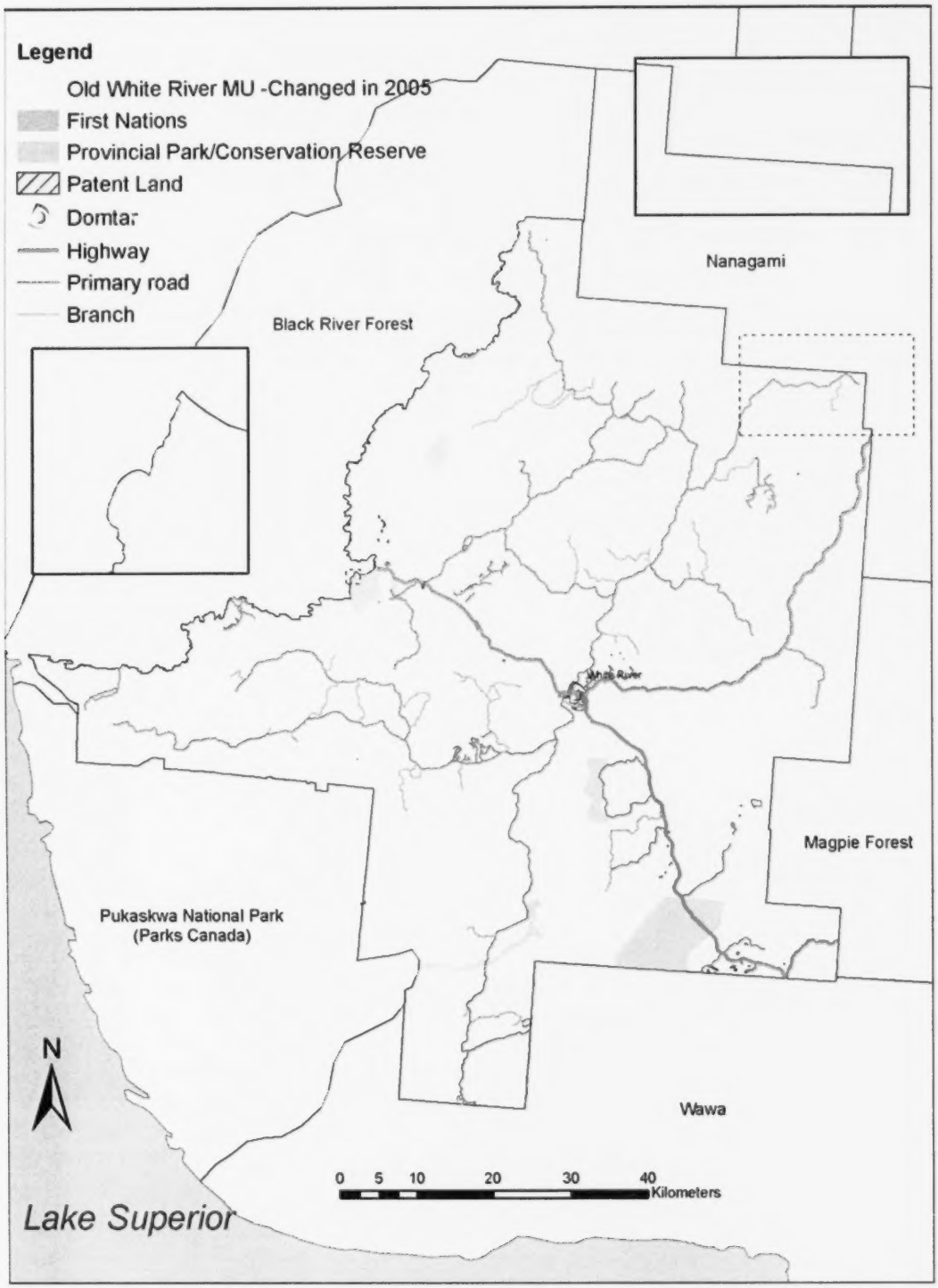


Figure 1. Location of the White River Forest.

The White River Forest is decidedly boreal in nature. The dominant tree species are black spruce, jack pine, trembling aspen, and white birch. Other boreal species include white cedar, balsam poplar, and larch. Species commonly associated with the more southerly Great Lakes-St. Lawrence forest, such as white pine, red pine and red maple, exist only in small stands or as scattered individuals amongst stands dominated by boreal species. The forest unit composition of the Forest is shown by age class in Figure 3 and described in Table 3. The age class structure of the forest is strongly bi-modal, with 24% of the available Crown managed area in the 1-20 year age class and 40% in the 61 – 100 year age classes. The 2008 FMP suggests that this reflects the impacts of the extensive fires in the 1950's, the relative lack of harvest and other disturbance (as fire suppression became more effective) from the 1950's to the 1980's, when harvesting ramped up to supply the sawmill. The Crocker's Lake fire of 1999 burned a total of 36,000 ha, which included 14,197 ha of productive forest on the WRF and added to the area of young forest.

Figure 2. Typical view of the White River Forest. Note the rugged land, mixture of coniferous (dark green), and deciduous (lighter green) tree species, and abundant water.

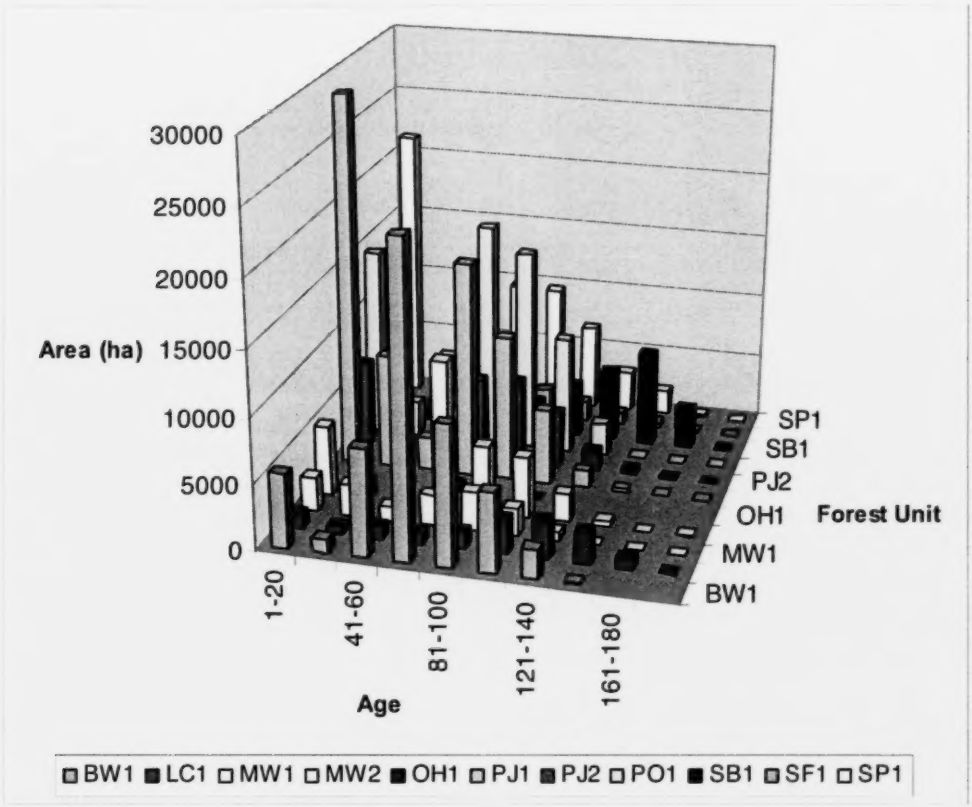


Figure 3. Age class distribution by forest unit on the managed productive Crown Forest land of the White River Forest. (Source: Table FMP-4, 2008 FMP). See Table 3 for a description of forest units.

Table 3. Forest Units of the White River Forest (from 2008 FMP). See section 3 of Appendix A for more detailed descriptions.

Forest Unit		Main Species	General description	% of Available Crown Managed Forest
Code	Name			
OH	Other Hardwood	Black Ash, Red Maple	Tol Hwd >= 40%	0.1%
BOG	Bog	Black Spruce	Black Spruce / Larch	Unmanaged
SB1	Lowland Spruce	Black Spruce	Black spruce >= 80%	9.0%
PJ1	Jack Pine 1	Jack Pine	Jack pine >= 70 and poplar, birch and other hardwoods <= 20%	18.5%
LC1	Lowland Conifer	Black Spruce	Spruce + Cedar + Larch >= 80% and no upland hardwoods or soft maple or red pine	3.3%
PJ2	Mixed Jack Pine	Jack Pine / Black Spruce	Jack pine + black spruce + red pine >=70% or jack pine >= 50% and all	7.7%

			conifers together > 70%	
SP1	Upland Spruce	Black Spruce / Jack Pine	All conifers >= 70% and conifers other than jack pine or black spruce <= 20%	14.2%
SF1	Spruce/Fir Upland	Black Spruce /Balsam Fir	All conifers >= 70%	4.2%
PO1	Poplar	Trembling Aspen	Hardwoods >= 70% and poplar >= 50%	15.8%
BW1	White Birch	White Birch	Hardwoods > 70% and Bw > Po	14.2%
MW1	Mixedwood 1	Jack Pine /Poplar /White Birch	Jack pine + red pine >= 20% and the stand does not fit any of the above conditions	3.5%
MW2	Mixedwood 2	White Birch /Black Spruce /Balsam Fir	All stands that do not fit any of the above conditions	9.4%

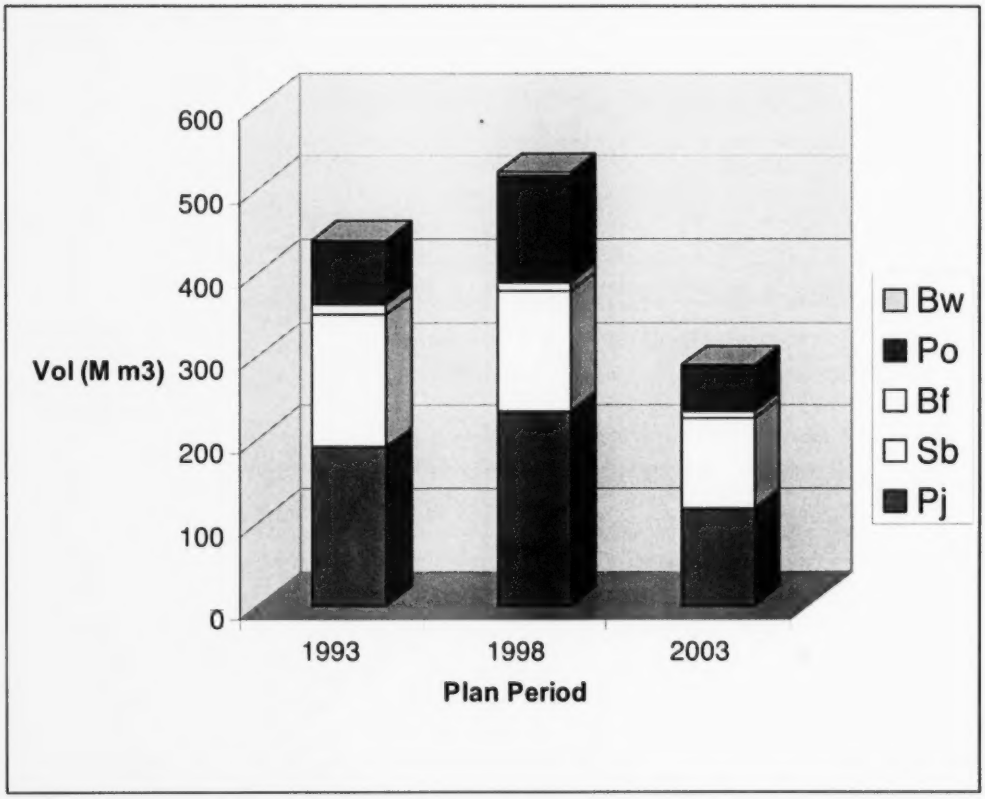


Figure 4. Average annual volume harvested by species on the White River for the three previous plan periods. 2007/08 figures are not available, but are less than 50,000 m^3.

Figure 4 shows the average annual volume of wood harvested on the forest by species in each plan period from the 1993-1998 period to the 2003-2008 period. Jack pine and spruce account for approximately 78% of the harvest over the fifteen-year period, 20% is poplar, and the remaining 2% consists of balsam fir and white birch. The harvest volume shows an evident decline in the 2003 plan period, reflecting the effects of two lengthy periods when the mill and woodlands operations were suspended.

Approximately 9% of the total surface area of the White River Forest is water; there are about 9,500 lakes and ponds in the Forest. Of these, there are 40 known coldwater lakes and 90 coolwater lakes. (There are likely many more coldwater and coolwater lakes – these numbers relate only those known). Fisheries are important to the local economy and for recreation, providing opportunities for sportfishing, bait fisheries and a small amount of harvesting by local First Nation communities. The fishery also serves as a foundation for many of the remote tourism camps found within the WRF.

Like all Ontario forests, the White River Forest supports a variety of wildlife species that depend on a mosaic of forest habitats. Many of the species common to the Forest are highly valued for providing recreational opportunities such as hunting and viewing, and commercial opportunities such as tourist outfitting and furbearer trapping. Moose and bear are the foundation of the outfitting enterprises.

The Forest provides habitat for some rare, threatened and endangered species. The status of these species in the Forest is shown in Table 4. The species of most note is the woodland caribou. Although caribou occur in the forest only very rarely now (as individuals from the small Pukaskwa Park population travel into the Forest), their status in Ontario is a concern to many, as their range has retreated northward significantly in recent decades.

Table 4. Rare, threatened and endangered wildlife species on the White River Forest.

Species	COSEWIC* status	COSSARO* Status	NOTES
Woodland Caribou	Threatened	Threatened	Caribou occurred in the White River Forest until the 1970's when the herd was extirpated. Today, a group of caribou resides in Pukaskwa National Park near the shore of Lake Superior. Until recently, the population was estimated at 10 – 20 animals, but was estimated at 5-10 in 2007. Animals are occasionally observed wandering north from the Park into the SFL.
Bald Eagle	Not at risk	Special concern	COSSARO status downgraded from "Endangered" to "Special concern" north of the Mattawa and French Rivers in 2006. According to MNR's NRVIS** database, there are 13 bald eagle nests in the Forest
Peregrine Falcon	Threatened	Threatened	The Forest is within the range of the peregrine falcon, but no nests have been recorded.
Golden Eagle	Not at risk	Endangered	Occasional winter sightings, but no recorded nesting.
Eastern Cougar	Insufficient data	Endangered	Occasional sightings reported, but no confirmed records

Great Gray Owl	Not at risk	Not at risk	Removed from provincial list (special concern) in 2007. Occasional winter sightings, but only one record of possible nesting
Short-eared Owl	Special Concern	No status	Occasional sightings, including two between 2001-05; no nesting records
Rusty Blackbird	Special Concern	Special Concern	Nine observations on WRF between 2001-05, including two nesting pairs.
Olive-sided Flycatcher	Threatened	No status	Added to COSEWIC list in 2007; present on WRF and probably breed on WRF.
Common Nighthawk	Threatened	No status	Added to COSEWIC list in 2007; present on WRF and probably breed on WRF.
Monarch Butterfly	Special Concern	Special Concern	Confirmed presence in open areas throughout the Forest.

* COSEWIC is the Committee on the Status of Endangered Wildlife in Canada. COSSARRO is the Committee on the Status of Species at Risk in Ontario. The work of the two committees is integrated; designations of COSEWIC apply at the national level, and those of COSSARO apply at the provincial level.
** NRVIS is the Natural Resource Values Information System.

As with much of the boreal forest, the major factors that have influenced the evolution of the forests in the White River area before the arrival of humans were natural agents such as fire, insects, and diseases. It is generally accepted that fire has probably been the most significant force in the boreal forest.

Prior to effective fire suppression, which came into being in the 1950's, large fires were not uncommon in the area. Two large fires occurred in the 1920's, totaling some 53,000 ha; another fire in 1936 burned approximately 42,000 ha in the Forest and in what is now Pukaskwa National Park. In 1954, there were two large fires that covered roughly 8,500 ha but from then until the Crocker's Lake fire in 1999, fires on the Forest were small.

Historically, the White River Forest supplied some 65 to 70 % of the fibre required by Domtar's sawmill in White River, the major industrial establishment in the area. The Forest also supplied significant volumes of fibre (both softwood and hardwood) in the form of logs (veneer/oriented strandboard), pulpwood, chips, sawdust, and shavings to a variety of mills within the Sault Ste. Marie - Thunder Bay region. As noted in Section 2.0, the sawmill was shut down for seven months starting in June 2003 and then again in the spring of 2007 for an indefinite period. There is no scheduled date for re-starting the mill. The woodlands were also shut down during the periods when the mill was closed, closing January 2007 until the present. There is also no date planned for the resumption of forest harvesting by Domtar, although a small amounts of harvesting was undertaken by the Pic River First Nation in winter 2007/08 and both Pic River and Pic Mobert First Nations have been harvesting on the forest in 2008/09.

The local economy has a very high dependency on the White River Forest. Domtar was by far the largest employer in White River, with its logging and sawmilling operations providing permanent employment for some 250 residents of White River and Wawa and generating an annual payroll (including benefits) in excess of $15,000,000. The shutdown has caused considerable stress in the town of White River, and the population is estimated to have declined to below 600 people, from more than 800 in 2006. Other local communities have also been affected. Many in the local work force have left to find work in other sectors and in other locations.

2.2.3 Forest Management Issues

There were two issues related to management of the White River Forest which have historically posed particular challenges and have been particularly noteworthy during previous audits.

Multiple Use of the Forest Management Unit Area. The 2003 IFA found that there were a number of issues that arose largely because there is a high intensity of land use within the Forest, by a wide range of users, including recreationists, tourists, users of Pukaskwa National Park, prospectors, and the forest industry. Because it is not the role of the forest management planning process to consider and balance these competing uses (land use planning is the appropriate venue), stakeholder concerns resulted in the 2003 FMP being subject to 11 requests for an individual environmental assessment. Plan approval was delayed due to efforts to resolve these controversies, necessitating the development of a contingency plan. The 2003 IFA team recommended that a land use plan be developed for the area of the forest, and this is presently being done for the entire Wawa District under the Crown Land Use Atlas Harmonization (CLUAH) initiative. We met with the CLUAH staff and discussed the situation with other people involved in the IFA to understand how the CLUAH initiative might have defused some of the issues encountered in 2003. The CLUAH process is outside the scope of the IFA, so we do not provide an assessment of it.

Access Maintenance and Water Crossing Quality: The previous IFA found that there were concerns associated with road maintenance that posed potential safety hazards, and that installation and maintenance of cross-drainage culverts was also weak. The 2003 IFA contained three recommendations related to access and water crossings. Consequently, we paid particular attention to roads and water crossings in this audit, examining all of the new primary road that was constructed during the audit period, and a large number of culverts and water crossings. The findings are reported in section 3.4.6.

Closures of Mill and Woodlands during Part of Audit Period: This IFA was conducted when both the mill and Domtar's woodlands operations were closed indefinitely, in which state they remain at the time of writing (January 2009). Many mills and forest management units in Ontario have curtailed or suspended their operations for various periods of time over the last several years, and so the situation on the White River Forest is typical of the circumstances on many Ontario forest management units at this time. On the WRF, Domtar's woodlands operations were halted in January 2007, and the mill operations were suspended indefinitely in June 2007, after the wood in the millyard was all processed. There had also been a significant closure of both mill and woodlands earlier in the audit period. One of the results of this situation is that there were few recent operations to look at; there was also a very small staff contingent left at White River, although the Domtar's regional staff (based at Nairn Centre and at Timmins) were able to knowledgeably provide insight and answer our questions during the audit process. Thus, while the status of the mill and woodlands did not affect our ability to conduct the audit, we were cognizant that our recommendations were being made while looking into an uncertain future.

3.0 Summary of Audit Findings

3.1 COMMITMENT

Both Domtar and the MNR exhibited a high level of commitment to sustainable forest management on the White River Forest. This was evident at the personal level in the course of our discussions with staff from both organizations, as well as by their actions. Examples of this commitment on the part of the Company include becoming certified under the Forest Stewardship Council's National Boreal Standard[4], and the Company's continued efforts to undertake tending and assessment with the money available in the Renewal Trust in 2008, even after the Company harvest operations had been suspended for more than a year. The Planning Team, which was chaired by the Company, did an excellent job preparing the 2008 FMP. The Team exceeded requirements when they added habitat analysis for seven additional songbird species that were of interest to the public. The audit team considered the 2008 FMP to be a very high quality document and we have deemed it to be worthy of a best practice.

MNR showed persistence and creativity in finding a way to enable the Pic River and later Pic Mobert First Nations to operate on the forest, and has been very supportive of their efforts to participate more fully in planning and in the economic benefits from forestry.

There is also a considerable amount of published corporate material which describes the commitments of the two organizations. Corporate MNR's guiding policy is "Our Sustainable Future" (released Feb 2005), which identifies sustainable development as the underlying principle of its vision. This vision is supported by a comprehensive policy and legislative framework, underpinned by the Crown Forest Sustainability Act (CFSA). The MNR is continually improving its policies and guidelines as new science and circumstances dictate. MNR is currently developing a comprehensive stand and site guide and a landscape guide; although these projects have been delayed several times, they promise to integrate existing direction at the two spatial scales and improve it by incorporating the latest research results.

Domtar's web site (checked September 13 2008) provides the Company's forest policy, which is comprehensive, covering such facets of sustainability as managing the state and productivity of the ecosystem, forest protection, listening to communities, and others. The policy has been approved by the Company Board of Directors and applies to the entire company.

3.2 PUBLIC PARTICIPATION

3.2.1 Local Citizens' Committee

The LCC for the White River Forest is known locally as the WRACC (White River Area Co-Management Committee). Since the Committee was formed in 1993, it has served

[4] In June 2008, the Company advised SmartWood that due to the ongoing indefinite shutdown of the White River Woodlands Operations that they would not be able to provide the support necessary to conduct the 2008 annual surveillance audit. As a result of this notification, SmartWood suspended the certificate due to failure to conduct the annual audit. This suspension can last 12 months, after which the certificate holder must resume meeting its certification conditions or the certificate will be terminated.

the Forest very well. Through this audit, it became apparent that the Committee's members are dedicated and sincere in their efforts to play an important role in contributing to the management of the Forest.

Consistent with the requirements of the 2004 Forest Management Planning Manual (FMPM), the Terms of Reference (TOR) for the WRACC was updated at the beginning of the process of planning the 2008 FMP. The TOR met the content requirements identified in the FMPM.

Over the course of the audit term, the WRACC held 6 – 12 meetings per year, with the peak number of meetings occurring in period of most intensive preparation of the 2008 FMPM, as is logical. The minutes of the meetings show that they were generally well organized. However, we were unable to find minutes for all meetings which are described as occurring in the MNR's WRACC documentation. Over the course of the five-year period, five or six (the documentation is unclear) meetings occurred for which no minutes were provided to the audit team. Although more than enough documentation exists to give a good sense of the manner in which the WRACC functioned, all meetings should be catalogued in the WRACC documentation to provide a consistent record of its proceedings.

Recommendation # 1

Wawa District MNR is to ensure that minutes of all LCC meetings are available in its records.

To a large extent membership on the Committee represented the interests present in the local community. Over the course of the audit period, membership on the committee included representatives from the following groups/interests:

- Parks Canada
- White Lake Cottagers
- Rod and Gun Clubs (Marathon and White River)
- General Public
- Municipality of White River
- Trappers
- Road-based tourism
- Bear outfitters
- Prospectors
- Union workers
- Pic Mobert First Nation
- Pic River First Nation
- Commercial Bait Harvesters;
- Domtar

The most notable absence from the list of Committee membership is representation of the remote tourism sector. Our understanding is that this relates to the fact that a strong balance of interests on the Committee is consistently on one side of the concerns related to access management and the remote tourism interests are on the other side. This created a difficult atmosphere for the remote tourism member who decided to forego membership in the committee. This topic is explored in more detail later in this section.

The MNR is not a member of the Committee, but plays very important support roles, through the provision of funding and providing logistical and informational support. All members of the Committee to whom we spoke expressed satisfaction with the role that MNR has played in the Committee's meetings.

Attendance at the Committee's meetings was generally very good. Only twice in the five year period did a meeting not reach a quorum (defined by the current TOR as 50% of the membership + 1).

One member of the Committee was designated as its representative on the FMP planning team. This Committee member took the role very seriously, attending several FMP training sessions. The member had a good record of attendance at both planning team and WRACC meetings and relayed WRACC concerns well to the planning team.

The period encompassed by the audit has not been without some challenges for the WRACC. Over the last five years the MNR has faced a number of funding constraints. Wawa District may well have more LCC's than any other District in the province, and in recent years, less funding has become available to fund LCC's. In the 2005/06 fiscal year, the level of funding available for all of the LCC's in total decreased from $25,000 to $15,000. Over the course of its existence the WRACC has practiced prudent fiscal management, which has included the practice of Committee members donating back to the Committee the reimbursement which they received from MNR for travel expenses. In addition, prior to the audit period, the Committee was also provided with some money by local judiciary when several fines associated with legal transgressions in the Forest were ordered to be donated to the WRACC. The WRACC has also received some monies through donations and by holding raffles. Over the course of time the WRACC accumulated a sum of money which it has maintained. When the funding cutbacks occurred, MNR asked the WRACC to use its accumulated balance to fund its operations in lieu of the previous level of MNR funding. This would have allowed the MNR to redirect a portion of the available District funding to the other LCCs in the District. WRACC members disagreed with this notion and saw it as "punishment" for their prudent fiscal management. In the end the WRACC and MNR agreed on a new funding method in which funding is provided to the WRACC based on approval of submitted invoices. This differs from the previous method in which baseline funding was provided each year, but it allows the WRACC to continue operating.

Another point of contention arose in 2007 when the MNR informed the WRACC and the other LCCs in the District that, due to ongoing fiscal constraints, "*LCC funding will be disbursed by [the MNR] with funds available only to LCCs in Forest Management Planning Mode*"[5]. The WRACC expressed strong consternation with this initiative noting that membership and participation in meetings would decline and the overall effectiveness of the Committee would be greatly impaired. We strongly concur with the WRACC's concerns and note that this initiative is at odds with the direction for LCCs described in the FMPM: "*The local citizens committee will assist the plan author, the interdisciplinary planning team and the MNR District Manager in the preparation* ***and implementation*** [emphasis ours] *of the forest management plan*"[6]. It is clear that the

[5] Letter from MNR Wawa District Manager to the chairs of the five LCCs in the Wawa District, August 17, 2007

[6] Forest Management Planning Manual, Section 3.2.1, page A-92

FMPM envisions a role for LCCs in plan implementation and this is confirmed as part of Condition #5 in the Declaration Order, which also provides direction to MNR to provide for reasonable member expenses and to provide office support. It is incongruous for the MNR to, on one hand, require LCC participation throughout the entire plan development and implementation cycle, and on the other, not provide funding for it to be achieved. It is also too much to expect the LCC to retain its membership, keep abreast of issues, and function effectively without MNR funding; with management planning taking place during approximately a three-year period every ten years, the proposal to only fund the LCC during planning will likely mean a significant loss of LCC participation and value. The audit team understands that the ultimate driver for this initiative is the lack of funding provided to the district by Corporate MNR, and provides Recommendation # 2 to address this.

Recommendation # 2

Corporate MNR is to provide sufficient funding to enable the Wawa District LCCs to continue operations during all phases of FMP development and implementation.

Yet another rough spot in the relationship between the MNR and the WRACC occurred when MNR considered amalgamating all the LCC's in the District[7]. The initiative came about largely as a response to the cut-backs in MNR funding, but was also seen by the MNR as an opportunity to create a District-wide stewardship committee with a mandate broader than that of the individual LCC's. WRACC committee members were strongly against the initiative, seeing it as weakening their ability to have a meaningful say in the management of the Forest. They were concerned that a broader committee would not have intimate knowledge of the Forest nor of the concerns of the WRACC members regarding its management. In the end the MNR decided not to pursue the initiative, but this was another experience that left a bad taste with WRACC members.

Taken together, the three issues described above – changing the funding approach for the WRACC, MNR's desire to restrict funding only to times when the WRACC is in planning mode, and MNR's consideration of amalgamating the LCC's in the District - were perceived by the WRACC as threats to its independence and effectiveness. The messages received by the WRACC from the MNR, whether or not they were intended, were of ambivalence and lack of appreciation. The audit team is aware that MNR's funding cutbacks have created a difficult operating environment, however given that the WRACC consists of dedicated volunteers, it is important for the MNR to foster a trustful relationship. When changes to the mandate or method of operation to the WRACC are being considered, it is important for the MNR to engage the Committee as partners, rather than in a paternalistic manner.

There is another indication of frustration among at least some members of the WRACC. During the audit period, the WRACC conducted a self-evaluation in which members of the committee were asked, in a 21-question survey, to rank its performance according to a number of criteria, including: the extent to which the Committee was informed, the Committee's involvement in forest management, the Committee's ability to be influential, the representativeness of the Committee and its members, and whether the Committee

[7] Letter from Minster of Natural Resources to a WRACC member, February 28, 2006

was functioning well. There was a good deal of variation amongst Committee members (see Figure 5), and some members were evidently quite pleased with the WRACC, while others were significantly less so, giving average scores of 6/10 or less. In particular, there was a cluster of low scores related to the ability of the WRACC to be influential in management of the Forest. Clearly there is a portion of the Committee that questions the WRACC's effectiveness.

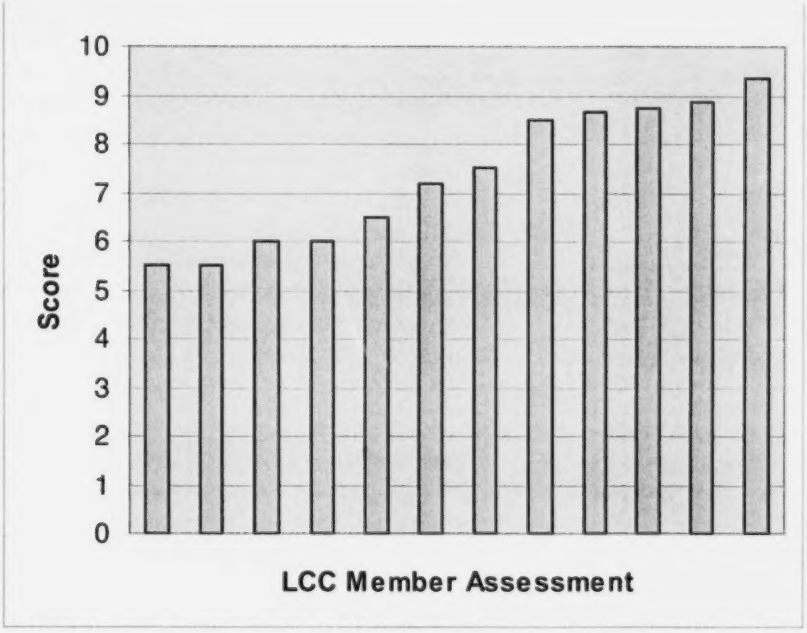


Figure 5. Individual LCC members' assessment of committee performance.

The highest average scores on the self-evaluation questionnaire were those that related to the extent that individual members were involved in the WRACC, and the extent to which the WRACC functioned well as a Committee. The lowest average scores were those that questioned the WRACC's effectiveness.

It is clear to the audit team that, although some frustrations exist both within the WRACC and MNR regarding the nature of their rapport and the Committee's ability to affect forest management, each party recognizes that a partnership between the two is necessary for each to fulfill its mandate. Recommendation # 3 directs the District MNR to continue its efforts to work progressively with the WRACC.

Recommendation # 3

Wawa District MNR is to continue its efforts to maintain a constructive relationship with the WRACC.

Because the WRACC is a volunteer organization and it is not clearly within the scope of the audit team to direct recommendations toward it, the above recommendation is

directed only at the MNR. However, recognizing that both parties have a strong vested interest in maintaining a positive rapport, the audit team strongly encourages the WRACC to continue to work sincerely with the MNR in ensuring that their relationship continues to progress positively.

During the previous IFA (which as noted earlier was conducted by this same audit team), we heard from several WRACC members that their most strident concerns related to access on the Forest. WRACC members, with the exception of those representing remote tourism, consistently argued against any access restrictions on the Forest. The issue of access management and multiple use of the Forest has a long history in White River and the previous IFA recognized it as the most significant issue related to management of the Forest. The IFA recommended that the MNR work with stakeholders to develop a land-use plan for the sub-region that includes the White River Forest. In response to the recommendation and other circumstances on the Forest, the MNR initiated the Crown Land Use Atlas Harmonization (CLUAH) project (described in more detail in Section 3.3.4). Simply stated, the initiative is an attempt to rationalize the land use direction in Wawa District. Access related issues are a consideration of the CLUAH initiative, which is nearing completion, with recommendations expected in the spring of 2009.

Access management continues to be a significant issue on the Forest, although there are indications that the situation is improving. In the development of the previous (2003) FMP, there were 12 requests for individual environmental assessments ("bump-ups") – most related to concerns regarding access management; there were none associated with the 2008 FMP. The CLUAH project holds promise, and there has been a significant improvement in the rapport between the Company and Pukaskwa National Park, which was under some strain in previous years related to the concerns of park staff regarding access management near the Park's boundaries. Nonetheless tensions remain between various user groups, primarily those interested in remote tourism and those desirous of less constrained access.

Given the history of this issue on the Forest, it is not surprising that members of the WRACC remain vigilant regarding their concerns related to access use and that recent progress has not tempered their wariness. The audit team is concerned, however, that other topics related to forest planning and management seem to take a back seat to access-related concerns amongst the Committee. Some WRACC members explained to the audit team that they believe that MNR and Domtar staff have sufficient experience and competence in forest management to allow the WRACC to focus on the issue of most concern to it.

This is not to suggest that the Committee ignores other aspects of the Forest, but that the balance of its concerns and energies is so disproportionately tied to access that the potential influence of the Committee on other important topics is weakened. Every member of the Committee with whom the audit team spoke identified access management as the foremost interest of the Committee, and most characterized it as outweighing by a considerable margin the interests of the Committee in other aspects of forest management. The audit team is concerned that the WRACC's perspective on access has become so predictable that it may not be very helpful to decision-making. It was also a contributing factor to the difficulties that MNR had in retaining a remote tourism representative on WRACC.

The CLUAH project is nearing completion and the audit team hopes that the WRACC and other parties involved in access management on the Forest will find its results acceptable as a benchmark and begin to focus their considerable energies on a broader array of stewardship issues. LCC's in some other parts of the province are encouraged by MNR to extend their involvement beyond forest management and play roles in other aspects of resource stewardship. The process of expanding the LCC's role is an iterative process between the MNR and the LCC's, in which the flexibility to play broader roles is provided by the MNR based on the committees' inclinations and talents. WRACC recognizes that the lack of remote tourism representation is a meaningful gap and informed the audit team that they would like MNR to solicit participation from the remote tourism sector, and others that are not represented. Retaining a broader representation of stakeholder interests would strengthen the WRACC and better position them to pursue a role beyond forest and access management. The audit team feels that the Wawa MNR would be well served to provide opportunities to broaden WRACC's membership and the scope of the issues about which it is asked to provide advice.

3.2.2 FMP Standard Public Consultation Process

The review of the public consultation process focused on production of the 2008 FMP for the White River Forest. The FMP Terms of Reference (TOR) formalized the establishment of the planning team and contained a detailed schedule for plan production, review and approval. The TOR were approved prior to the Invitation to Participate, as required by the FMPM.

The methods used to communicate with the public were in accordance with FMPM requirements for the Public Consultation Process. Information Centres were held with fair to good levels of attendance. Standard newspaper advertisements were used to provide notice for each planning stage. Inventories of information and map products that were available for each planning stage were effectively archived on CD/DVD.

A comprehensive District mailing list containing up to 1500 names was updated on a continual basis using returned mailings at each stage of the public consultation process. Requests to be added to the list were processed prior to the next stage of consultation. The requisite groups listed in the FMPM were included in the mailing lists, although printed copies of the mailing list were not archived for each stage of public consultation.

The WRACC was effectively engaged and provided with the opportunity to identify the desired forest benefits from the White River Forest through participation in the White River Forest Desired Forest Benefits Meeting held on April 18, 2006 in White River. The attendance sheet indicates that several representatives from Domtar and MNR attended the meeting, and that a number of those who attended were planning team members.

Attendance sheets for the First Information Centre (Review of Proposed Operations) and the Second Information Centre (Review of Draft Forest Management Plan) indicated that both were reasonably well attended. The First Information Centre attracted 28 attendees at White River, 11 at Pic River FN, and 51 at Pic Mobert FN. The Second Information Centre attracted 38 attendees at White River, 15 at Pic River FN, and 27 at Pic Mobert FN. The planning team and WRACC were well represented and available to answer questions. In a few cases, however, planning team and WRACC members outnumbered attendees (e.g., 7 of 11 First Information Centre attendees at Pic River F.N.).

The Summary of Public Consultation contained a detailed accounting of comments received during the planning process and responses made by MNR and the plan author. Review of the Public Correspondence binder revealed that MNR generally responded to public comments and requests in a timely manner. In some cases, a preliminary response was sent out within two weeks to be followed by a more detailed response at a later date. Responses were very well-written, thoughtful and respectful. A detailed Aboriginal Consultation Summary was also provided in Supplementary Documentation 6.1.8 as required by the FMPM.

3.2.3 Issue Resolution

A review of the public consultation records for the 2008 FMP revealed that the requisite opportunities for the formal Issue Resolution Process were communicated through public notices in all five stages of the public consultation process. Two formal requests were made for the Issue Resolution Process and these were resolved in accordance with the procedures set out in the FMPM.

Both requests were received well after draft plan submission and completion of the 60-day period for public review. In accordance with the Issue Resolution Process, both requests were directed to the MNR Regional Director for his consideration. A meeting was arranged to deal with both requests concurrently and responses to both requests were made in a timely manner.

In the first case, many of the individual's specific requests were denied, but the Regional Director did direct the planning team to reclassify two primary roads (Road 405 and Road 10) as branch roads in the final FMP, to consider adjusting the location of one corridor where it passed through a remote tourism AOC and to erect appropriate signage. The Regional Director (RD) also directed the planning team to remove the proposal to extend Road 200 from the final FMP, in deference to any decisions regarding land use arising from the CLUAH project.

In the second case, the individual had fewer requests but expressed the same opposition to the extension of Road 200. Accordingly, the individual received the same commitment from the RD to direct the planning team to remove this specific proposal from the final FMP.

Those interviewed believed that the CLUAH project helped to focus public input and minimized the need to invoke the formal issue resolution process.

3.2.4 Individual Environmental Assessments

A review of the public consultation records for the 2008-2018 FMP revealed that the requisite opportunities for Individual Environmental Assessment (IEA) were communicated during FMP preparation through public notices in all five stages of the public consultation process. However, no IEA requests were made. This is a big change from the previous plan, which attracted 11 IEA requests and at least 200 letters and e-mails after the window for making IEA requests had closed.

3.2.5 Aboriginal Involvement in Forest Management Planning

There are four First Nations and one other Aboriginal community that are considered to be on or adjacent to the White River Forest. The Pic Mobert First Nation reserve is located within the WRF, and is the site of the community. The reserve and community of the Ojibways of Pic River First Nations is located adjacent to the western tip of the WRF. Both First Nations have been engaged on the forest to varying extents over the past couple of decades, and both are at present active participants in planning and have timber harvesting operations on the Forest.

The community of Michipicoten First Nation is located a few kilometers south of Wawa, and has been more active in matters related to the Algoma Forest, within which it is located.

Missinabie Cree First Nation is located north of Chapleau, and has not had a history of involvement on the WRF; the audit team understands that it is invited to participate because some of its community members reside in the town of White River. The Environmental Assessment Declaration Order states that directives to involve Aboriginal communities pertain to those that are in or adjacent to the Forest. Given the distance to the main community and the lack of interest that has been exhibited, the audit team feels that MNR should question whether it continues to consider the Missinabie Cree First Nation to be a potential participant on the WRF.

There is an Aboriginal community located near Hornepayne (within the Nagagami Forest) that is not recognized by the federal government as a First Nation. It is structured with a chief and MNR has treated it in a similar manner to a First Nation, because, as the District expressed it, MNR has an obligation and a duty to consult and involve all recognized Aboriginal communities. The Hornepayne Aboriginal community has a history of non-participation on the WRF, however a community representative was interested in meeting with the audit team and a telephone meeting was held, which is further discussed below.

Consultation During Planning

All five First Nations /Aboriginal communities were invited by the Wawa District Manager to participate in the development of the 2008 FMP. District MNR sent Invitations to Participate to the Chiefs of all five communities on June 9, 2005; the 2008 FMP states that all five have "traditional land use areas" that overlap the WRF. Both Pic Mobert and Pic River First Nations agreed to participate. These two First Nations were the most likely participants, given their history of interest and involvement in planning (including in the 2003 FMP development process) and working, or trying to work, on the Forest.

Both First Nations had a member on the 2008 FMP planning team. The Pic River representative participated in only three of the eleven planning team meetings, but described the experience as satisfactory. The MNR also made extensive efforts to consult widely within the community. There were two Information Centres held in Pic River community. The first was held June 12, 2007, to review proposed operations. To attract community members, the MNR mailed a notice of the meeting and copies of the Preliminary Report on the Protection of Identified Aboriginal Values and the Final Aboriginal Background Report to each community member. During the week before the

meeting, it was advertised on community radio. Attendance was quite low, at 11 people, many of whom were planning team members.

The Second Information Centre was held on October 18, 2007, and its primary purpose was to provide community members with an opportunity to review the draft FMP. As before, notices were sent to each household, along with the most recent versions of the Report on the Protection of Identified Aboriginal Values and the Aboriginal Background Report. As before, advertisements were run on the community TV channel. There was a small increase in attendance compared with the first Information Centre, with 16 people present. No comments were received by the Planning Team.

MNR also held two community meetings in Pic Mobert in much the same manner, with mailouts to each community member. In this community, the attendance was much better. The First Information Centre was held on June 13, 2007, in conjunction with a community feast, and attracted 55 participants, including two Band councilors. Twenty-nine people attended the second Information Centre, held on October 17, 2007. Eighteen comments were received, which is a considerable level of response from any community. The Economic Development Officer (EDO) was a member of the Planning Team, but did not attend often. In August 2007, partway through the planning process, the community hired a forester and he replaced the EDO on the Planning Team, and was a regular attender who also helped to facilitate the two community Information Centres.

The comments received from Aboriginal people frequently indicated opposition to the use of herbicides, to clearcutting, to extensive harvesting on or around traplines, and requested wider buffers around key water bodies such as White Lake. The Supplementary documentation indicates that the MNR responded in writing to all of these comments.

The Report on the Protection of Identified Aboriginal Values and the Aboriginal Background Report that were produced for each of the two communities benefited from MNR's decision to hire a member of the Pic River community to collect values information from both communities. This person was able to obtain a considerable number of values and the initiative was very positive and undoubtedly contributed to the goodwill that has developed between MNR and both First Nations. The 2008 FMP contains a very brief profile of both communities.

Hornepayne, Michipicoten and Missinabie Cree First Nations were kept updated on the progress in the development of the plan, but they did not respond or contact the Planning Team. There were no values or background information reports developed for them, and there are no community profiles for them in the FMP.

Aboriginal Participation in the Benefits of Forest Management

Pic River Development Corp (PRDC), the development agency of the Ojibways of Pic River First Nation, had access to a harvest allocation of 50,000 m^3/yr under the 2003 FMP, and Pic Mobert had an opportunity to harvest 25,000 m^3/yr. The auditors were informed that the arrangements to enable the two First Nations to access harvest opportunities on the WRF appear to have arisen from meetings held in 1998, with the understanding that harvest opportunities would continue. The harvest opportunities were discussed in a letter dated 1998 and were referenced in the 1998 FMP. The 2003

FMP states, "The Pic River First Nation conducted harvesting under direct licensing on the White River Forest during the previous planning terms. The situation will continue in the 2003-2008 planning term with allocations being assigned to Pic River. "The understanding has been that generally the allocations will be hardwood-dominated.

The legal basis for these opportunities does not appear to be particularly firm – there is no condition in the SFL that provides these opportunities and the 2008 FMP did not mention that the two First Nations would have access to harvesting timber. While the existing legal status of these opportunities seems to be functional, they do not appear to rest on a particularly solid legal foundation. The audit team thinks that there is some risk that the legal standing of these allocations, or opportunities, may become problematic in the future, and recommends that the MNR, in consultation with the Company and the two First Nations, should move pre-emptively to address the situation.

Recommendation # 4

That MNR and Domtar work with Pic River and Pic Mobert to provide a more sound legal basis for the allocations which have been granted to Pic River First Nation (through PRDC) and Pic Mobert First Nation.

Domtar has a collective agreement with the United Steel Workers Local 1-2693 (USW), formerly the Industrial Wood and Allied Workers (IWA) Local 2693. The collective agreement requires all third party operators on the White River Forest to reach agreement with the USW before Domtar can sign an overlapping agreement (a requirement of the forest resource licensing process) with the third party. MNR requires that the affected licensee (Domtar) and the prospective licensee (PRDC) endeavour to agree on an overlapping agreement before an overlapping forest resource licence is issued. Pic River undertook harvest operations on the WRF from 1996 to 2002 under overlapping licenses, and had been able to reach agreement with the USW, and an overlapping agreement was signed with Domtar. However, this changed in 2002, when PRDC and the union were unable to come to terms and Domtar would not sign an overlapping agreement. Under the terms of Domtar's collective agreement, signing the overlapping agreement in violation of the collective agreement would have likely triggered a grievance and labour action by the USW.

The parties went through facilitated negotiations, including mediation, but were unable to reach an overlapping agreement. This process lasted from 2002 to 2006.

Seeing that the negotiation and mediation process failed to resolve the issue, MNR broke the impasse and issued an overlapping Forest Resource Licence (FRL) directly to PRDC, without requiring that PRDC and Domtar sign an OLA. This move set a precedent in Ontario and the Audit Team recognizes it as a creative and bold decision.

On July 24, 2006, an overlapping FRL (No. A62761) was issued to PRDC to allow them to harvest approximately 53,000 m^3 on 3.23 km^2 between April 1, 2006 – March 31, 2008. Harvesting under this licence did not get underway until late in the 2007/08 fiscal year. The harvest was completed by March 31, 2008.

The 2008 FMP states that it is "expected" that PRDC will be granted an overlapping licence on the forest – Pic Mobert is not mentioned in this capacity and the plan text notes that "the number of licensees that will operate on the forest during the FMP is unknown at this time".

Pic Mobert has conducted harvesting on the WRF at times between 1996 and 2002. They were not licensed to harvest during the audit period, and a lack of operational capacity was a primary limitation in their case. Another key event during the audit period was Pic Mobert's decision to hire a forester, which was implemented in August 2007. An experienced and capable individual was hired who has been able to move Pic Mobert forward in a strategic manner. Pic Mobert recently entered into a partnership with PRDC and PRDC was licensed to harvest approximately 70,000 m^3 on 6.59 km^2 between April 1, 2007 and March 31, 2008. Harvesting under this licence did not get underway until late in the 2007/08 fiscal year and the area was bridged[8] in the new WRF 2008-2018 FMP and 2008/09 AWS and completed in 2008/09.

The audit team commends the MNR District for its dedicated and creative efforts to improve the participation of Pic River and Pic Mobert First Nation in planning and in capturing benefits from forest management.

Best Practice # 1

Wawa District MNR has been strongly supportive in furthering the participation of Pic Mobert and Pic River in planning and in the forest harvest sector.

Pic River and Pic Mobert First Nations have begun to harvest on the White River Forest and appear to have reached a stage where they can move forward on their own. Continued support from MNR is still important, but they are likely to draw less on MNR staff time in the future.

This is fortunate, because Michipicoten First Nation and Hornepayne Aboriginal community both indicated a strong desire to develop forest-based economic enterprises. As mentioned above, Michipicoten has historically been more active on the Algoma Forest, which is also overseen by MNR's Wawa District. The 2006 IFA of the Algoma Forest reported that "Wawa MNR had several discussions with Michipicoten First Nation regarding harvesting opportunities and has assisted with the development and review of a Forestry Business Plan for harvesting. Positive progress has been slow due to lack of training and staff turnover at the Band office." The audit report also stated that "Clergue [the co-operative SFL-holder that manages the Algoma Forest] recently signed a Memorandum of Understanding which outlines a number of initiatives with respect to economic opportunities with Michipicoten First Nation".

The Chief indicated that he has been frustrated by all of the meetings and the lack of any substantive progress; Michipicoten does not presently have a harvesting operation, but would like the opportunity to have one, or to have access to fibre for a biofuel or bioenergy project. The Chief said that he has been told for years that the timber has all

[8] The FMPM describes bridging as the administrative process for allowing harvesting operations approved in a forest management plan to be completed within three months of that plan's expiry but reported as harvesting undertaken during the last year of the plan.

been allocated, but now that many of the traditional licensees are either curtailed or shut down, he felt that this should be the time when an opportunity can be created for a new local entrant. The audit team is inclined to agree; while there may be better opportunities for Michipicoten First Nation to access timber resources on other forests in the District, this is something that should be explored.

The Hornepayne aboriginal community is in a different situation than the Michipicoten First Nation, and based on the audit team's discussions with them, they did not appear to have access to much professional forestry expertise or entrepreneurship. The lack of legal First Nations status does not appear to restrict MNR's responsibility – the SFL, the 2004 FMPM and Condition #34 of the Environmental Declaration Order are all directed towards Aboriginal communities, not just First Nations. While the Audit Team could not find a legal definition of what constitutes an Aboriginal community, MNR stated the view that the overriding intent of Condition #34 is to conduct negotiations to assist Aboriginal peoples in deriving benefits provided through forest management planning, in order to help to address the general socio-economic disadvantages of Aboriginal people. As such, Hornepayne aboriginal community would seem to be a candidate for long-term capacity development, which is beyond the scope of MNR to address on its own. However, MNR may be able to encourage Indian and Northern Affairs Canada (INAC) or another organization to contribute to assisting the community.

Recommendation # 5

Wawa District MNR is to initiate consultation with Michipicoten First Nation and the Hornepayne aboriginal community to identify ways for each of them to achieve a more equal participation in the benefits provided through forest management planning on one or more of the forests in Wawa District.

3.2.6 Annual Work Schedule Public Inspection and/or Consultation

IFAPP Procedure 2.6.1 Annual Operations Public Inspection and/or Consultation was classified as a medium risk procedure and was not assessed in accordance with the risk-based sampling requirements of the IFAPP.

3.3 Forest Management Planning

This section of the report reviews the preparation of the 2008 FMP, the process for which is set out in the 2004 FMPM. The audit team felt that the 2008 FMP was of a high quality, very informative and in the opinion of the audit team, well balanced between the many uses and values on the Forest. Yet these were not by themselves the major reasons underlying our best practice recommendation; instead, we feel that these were outcomes of the most basic factor: a high level of commitment on the part of the Planning Team to produce a useful and informative document, based on fair and thorough analysis. We consider this accomplishment to be worthy of a best practice.

Best Practice # 2

The Team that developed the 2008 FMP has produced an exceptionally good document.

3.3.1 Plan Author, Planning Team, Chair and Advisor Activities

Planning team members are appointed by the MNR District Manager. The plan author, with assistance from the planning team is expected to develop the TOR for production of the forest management plan. The TOR must be approved by the MNR District Manager and the MNR Regional Director in order to proceed with planning. Thus it must be approved prior to issuing the first public notice of the formal public consultation process. The copy of the FMP TOR included in the 2008 FMP indicates that the RD approved the TOR on Feb. 21, 2006, sufficiently in advance of the public notice for the Invitation to Participate which occurred on March 16, 2006.

There was sufficient representation of professionals on the planning team to address the planning requirements of the FMPM. There were representatives from the LCC (WRACC), overlapping licensees, and two Aboriginal Communities, as well as an MNR biologist and sufficient numbers of professional foresters from MNR and Domtar. The plan author was a Registered Professional Forester (R.P.F.) during plan development and is currently in good standing with the Ontario Professional Foresters Association. Generally, planning team members were capable and experienced.

Eleven planning team meetings were held between November 15, 2005 and July 10, 2007. The frequency of meetings seems appropriate, and the absence of meetings after July 10, 2007 was due to the fact that planning team members had clear responsibilities for completion of the draft and final plans and simply did not require further direction to keep working within their task teams.

The minutes of planning team meetings were very well written. Issues affecting the schedule for plan production were clearly identified and appropriate action items were assigned to staff responsible for the various plan processes and components. Tracking of action item completion from one meeting to the next was clearly documented. Public concerns regarding road access were clearly expressed by the WRACC member and due consideration of public comments and correspondence seems to have occurred.

Attendance by planning team members was very good except for representatives of the two Aboriginal Communities, who each attended three of eleven meetings. However, this did not negatively impact plan development, and having First and Second Information Centres at each of Pic Mobert and Pic River communities provided good opportunities for dialogue, as discussed earlier. There was continuity of team members through plan production with some turnover of MNR Regional advisors and reviewers.

Although most action items were completed in a timely manner, some were carried over for one or more meetings and appear to have been associated with delays in the production of various plan components (Refer to 3.3.6). However, the steering committee was not approached to resolve issues or disagreements between planning team members. Rather, the approach taken was to reach consensus within the team instead of seeking intervention by the Steering Committee, even if this resulted in some delays. Those who were interviewed believed this approach would ultimately result in a stronger plan. It is the opinion of the audit team that this has occurred and that the positive working relationship between Domtar and MNR staff contributed to the overall success of plan development.

3.3.2 *Introduction*

The Introductory sections of the 2008 FMP contain the elements required by the FMPM, including an index to the environmental components of the Plan and a brief description of how MNR's Statement of Environmental Values under the Environmental Bill of Rights had been considered in plan development.

3.3.3 *Management Unit Description*

The management unit description component of plan includes very good descriptions of the current forest, and the Forest`s wildlife. The description of the historic conditions on the forest is excellent, providing very detailed accounts of historic natural disturbance levels and historic wildlife habitat. Good descriptions are provided of changes in the populations of several key species of wildlife.

One component of this section of the plan that attracted our attention was the discussion of the implications of the historic forest condition. This component of the plan describes the present forest as having a "preponderance" of mature and overmature forest, and attributes this to fire suppression over the last 90 years. The plan notes that wildlife species which prefer old forest, such as marten, currently have "greater opportunity" on the forest than in the past. The plan also notes that the current age class distribution affects objective targets and the Forest's ability to provide a consistent flow of mature and overmature forest over the next 40 years.

The characterization of the present forest as having an unnaturally high amount of old forest bears scrutiny. We compared the amounts of mature and old-growth age classes (as defined by the MNR's Old-Growth Definition's document[9] and the 2008 FMP) on the Forest in 2008 to the amounts predicted to occur in the absence of fire suppression. In the absence of fire suppression, the age-class distribution of boreal forests is generally believed to follow the negative exponential relationship with the area of forest in different age-classes determined by the fire-return time for the forest. The 2008 FMP acknowledges and describes this relationship. The FMP identifies different fire-return times for different forest units, ranging from 90 years for MWI, PJ1 and PJ2 to 140 year for BOG and LC1 forest units. With this information it is possible to calculate the "natural" proportion of area expected to occur in each age class, and therefore the proportion of the forest expected to be in mature and over-mature classes.

Figure 6 shows the amount of mature forest in 2008 compared to the amounts predicted to occur in the absence of fire suppression (i.e. a "natural" amount) and Figure 7 shows the analogous relationship for old forest. Figure 6 confirms a portion of the plan's statements; clearly there is more mature forest in 2008 than would be expected to occur naturally. Across all forest units, there is approximately 106,000 more ha in mature forest in 2008 than would be expected to occur naturally. Figure 7 shows that the plan's contention is not true for old growth forest. For most forest units there is less old growth on the forest in 2008 than would be expected to occur naturally. Across all forest units, there is approximately 72,000 ha less old growth forest in 2008 than would be expected to occur naturally. Therefore the plan's contention that wildlife species which prefer old forest have greater opportunity on the Forest than in the past is not accurate.

[9] Uhlig, P., A. Harris, G. Craig, C. Bowling, B. Chambers, B. Naylor and G. Beemer. 2001. Old growth forest definitions for Ontario. Ontario Ministry of Natural Resources, Queen's Printer for Ontario, Toronto. 53 p.

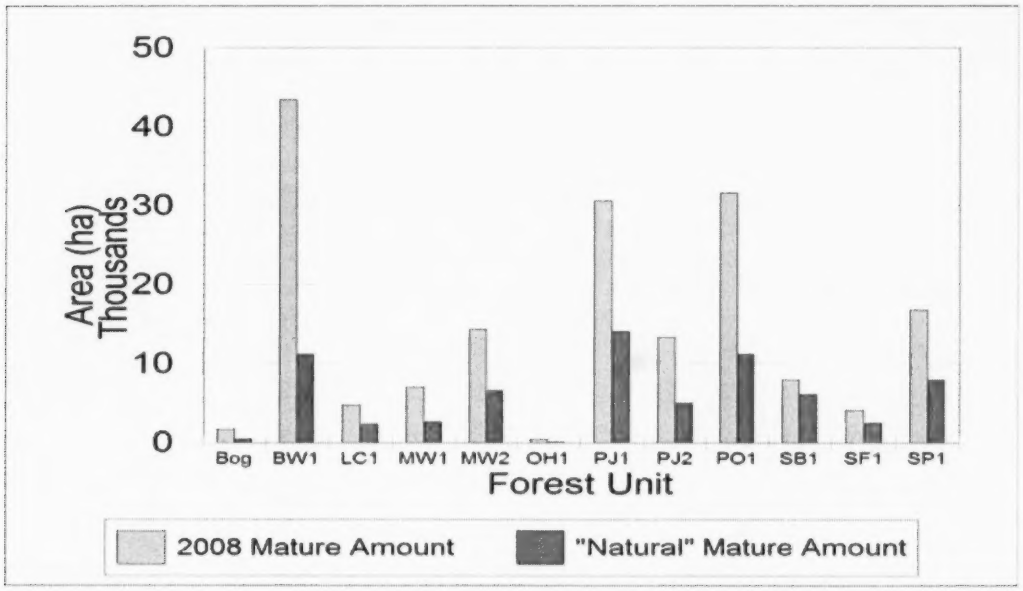


Figure 6. Comparison of amount of mature forest (2008) vs. amount calculated to exist under natural disturbance dynamics. (Mature forest amounts for 2008 extracted from SFMM output.)

We make this point to counter the mind-set that we encountered relatively frequently when conducting the audit that the forest contained an "excessive" amount of old growth. Section 3.3.4 below discusses the projected future of old growth on the Forest.

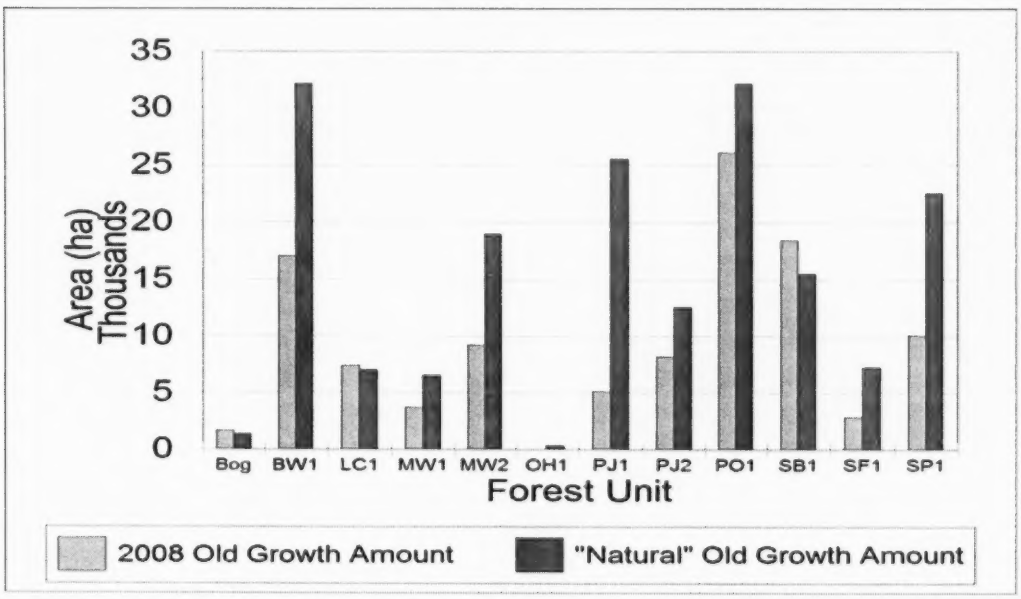


Figure 7. Comparison of amount of old growth forest (2008) vs. amount calculated to exist under natural disturbance dynamics. (Old growth amounts for 2008 taken from Table 11 of the FMP.)

Altogether, there is only about 34,000 ha more ha in the mature and old growth age classes than would be expected to occur naturally, however the fact that there is considerably more mature forest, and less forest in younger age classes (See Figure 3) contributes to the challenges of producing a stable wood supply.

Forest Resource Inventory

The most recent Forest Resource Inventory (FRI) for the White River Forest was completed in 1993, based on aerial photography acquired in 1989. For the preparation of the 2008 FMP, the FRI for the White River Forest was updated to reflect actual harvest depletions and free-to-grow survey results up to March 31, 2005, and forecast harvest depletions for the following three years up to March 31, 2008. Domtar's methods for inventory update were appropriate and comprehensive; its silvicultural records were found to be well-organized, up to date, and accurate. During the inventory update process, historical silvicultural records were used to determine the most likely stand types and forest units for stands which had not yet been assessed for free-to-grow status, based on the treatments that were applied. A good description of the inventory update procedures used in preparation of the planning inventory is contained in Section 2.2.3 "Planning Inventory" and Section 6.1.6 "Analysis Package" in the 2008 FMP.

The 2008 FMP reported that the total Crown managed production forest area for the White River Forest was 446,407 ha. Of this total, 18,458 ha, or 4.1%, was in the Recent Disturbance category, while an additional area of 60,611 ha, or 13.6%, was reported to be stands that were below regeneration status, i.e., had not yet been assessed for free-to-grow status. The total area reported in the recent disturbance and below regeneration standards categories, 79,069 ha, represents 17.7% of the production forest. However, when the forecasted harvest area which was not actually depleted during the 2003-2008 FMP term, and free-to-grow surveys which were completed after 2005 are accounted for, the new total is approximately 55,260 ha, or 12.4%. Approximately one-quarter of this area is within the Crocker Lake burn area, all of which is scheduled to be assessed for free-to-grow status in the next FMP term. This is a reasonable total for these categories and indicates that Domtar has done a good job of keeping up with its licence obligations for completing surveys.

3.3.4 Strategic /Long-Term Management Direction

The strategic direction from the 2003 FMP is being maintained on the WRF through the 2008 FMP. However, there have been changes to the regulatory framework, most notably the implementation of NDPEG, which have affected the range of available management possibilities in the 2008 FMP, which is more highly constrained than the 2003 FMP. This was illustrated clearly when during the scoping analysis, an effort to achieve the 2003 FMP objectives using the 2008 constraints proved to be infeasible. There are many factors that likely contributed, including the use of revised data (e.g. in the 2008 FMP, the hardwood yield curves were reduced from the 2003 FMP levels), regulatory differences, and changes in the forest due to succession and disturbance.

In addition, the 2003 FMP did not have to contend with accumulating reserves associated with the implementation of NDPEG. The 2008 FMP reports that the accumulating reserves from the implementation of NDPEG reduced each of the SPF and poplar harvest by roughly 40,000 m^3/yr in term 5 of the modelling scenario, representing approximately 13 and 40% of the allowable harvest levels that were reached in the preferred management scenario. There were also accumulating reserves from MAFA's,

however their influence was minimal. An additional source of constraints in the 2008 FMP was the effort by the Planning Team to have ecological values, such as old forest area, track more the closely the null run results. Thus, while the 2008 FMP continued the overall management direction of the previous plan, there were modifications in how the plan was constructed.

One indication of the overall similarity in plan direction is that the planned harvest volumes in the 2008 FMP follow fairly closely those from the 2003 FMP, as seen in Figure 8. That figure shows the planned harvest volumes, annualized, for three species groups – spruce-pine-fir (SPF), which are the species used to make softwood lumber, poplar (Po) and white birch (Bw). The downward trend, until roughly 2040, in the SPF harvest profile reflects the influence of the age class gap (see Figure 3); by 2050, the allowable harvest volume begins to increase. The 2008 FMP projects a higher low point than was estimated in the 2003 FMP, which is positive if it comes to pass.

The hardwood yield curves used in the 2003 FMP were overestimating actual yields by approximately 20%, and the 2008 FMP used revised yield curves for these species. This is evident from Figure 8, however the general pathways stay the same for both species groups. The age class structure of the poplar forest unit is similar to that of the SPF species, and so the shape of the harvest pathway is similar. The age class structure of the white birch is more extreme, with 60% of the forest area being between the ages of 60 – 100. As a result, the trajectory of the harvest is downwards and the future harvest never recovers to the level planned in the current period.

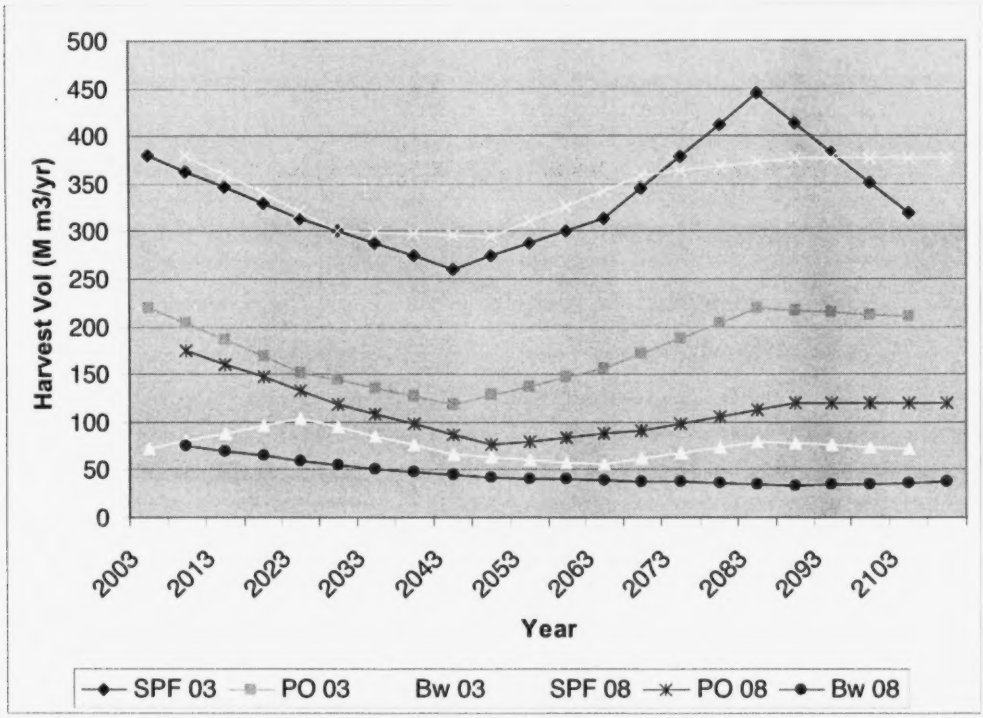


Figure 8. Comparison of planned SPF, poplar and birch harvests in the 2003 and 2008 FMPs (M m^3/year).

The discussion in the FMP indicated that the harvest targets for the forest, which were 400,000 m^3/yr for SPF, 243,000 m^3/yr for poplar, and 64,500 m^3/yr for white birch,[10] were not met in many of the planning terms due to a combination of factors ranging from forest age class structure to measures to conserve other values. In particular, retaining old forest area proved frequently to limit the harvest level (i.e. it was often a binding constraint).

The poplar harvest target is the sum of the targets in the wood supply commitments for that species. Figure 8 indicates that the full amount of the poplar commitments cannot ever be met from this forest, while the birch commitment (which amounts to a target of 40,000 m^3/yr) can be met in the first 50 years of the plan but not thereafter. The downward revision of the hardwood supply was due to a downward revision of the yield curves and changes to post-harvest successional pathways. The effect of NDPEG requirements to leave poplar and birch residuals was also influential. The extent to which the commitments were met during the audit term is discussed in section 3.8.3.

The current uncertainty regarding future industrial use of poplar suggests that there will be a time in the future when it is appropriate to review and reduce the poplar commitments, as well as perhaps the white birch commitments. A recommendation is made to this effect.

Recommendation # 6

Corporate MNR is to review and revise the hardwood volume commitments on the WRF at an appropriate juncture.

The 2008 FMP observes that there are some species of trees that only appear rarely on the forest – black ash, American elm, red maple, red pine and white pine. The plan also suggests that there may be occasional hard maple and yellow birch on the Forest. In the WRF, these species are well to the north of their normal ranges. The FMP reports that there is one red pine stand, one white pine stand (a second contains 20% white pine), and several dozen stands dominated by ash and red maple (totaling 571 ha).

[10] There was also a harvest target for cedar, but that was easily provided for. The 2008 FMP reported that the announcement of a successful proponent resulting from the request for proposals to utilize cedar in Northeast Region is expected to increase demand for cedar from the WRF.

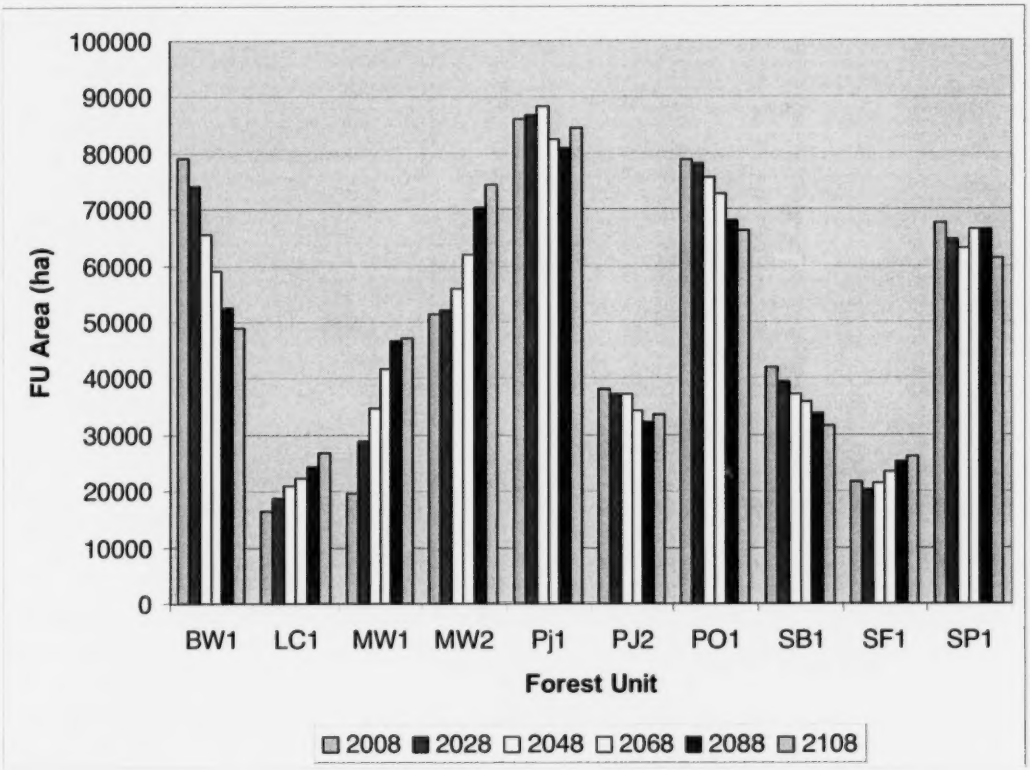


Figure 9. Area by forest unit over time, projected in 2008 FMP.

The FMP states that harvesting of these species will be avoided and where feasible, they will be encouraged in the regeneration. This is a very sound approach, given the importance of maintaining forest diversity and, at a larger scale, the genetic diversity within the species. The genetic composition of individuals under the more extreme conditions found at the extremities of the species range is not likely to be well-represented in the remainder of the population, and will likely be important in helping these species adjust their ranges in the face of continuing climatic change.

Figure 9 shows the areas of the main forest units as projected in the 2008 FMP, at 20-year intervals from 2008 to 2108. While there are some shifts in area between conifer dominated forest units, the total area of conifer remains quite stable. The increase in lowland conifer area (LC1) is drawn from the lowland black spruce (SB1) forest unit – the former is projected to increase by 10,000 ha over 100 years whereas the SB1 unit is expected to decrease by the same amount. The upland spruce (SP1) forest unit is planned to decline by about 6,000 ha over the 100-year period – much of the area will shift to the spruce-fir (SF1) unit, which is forecast to increase by roughly 4,500 ha. The main jack pine unit, PJ1, is essentially stable, while the PJ2 unit, which is a more mixed forest unit, declines by approximately 4,500 ha. Much of this area shifts to the two mixedwood forest units (MW1 and MW2).

In contrast to the conifer, the areas of the hardwood forest units (BW1 and PO1) are anticipated to decline over time, with much of the area moving into the two mixedwood units (MW1 and MW2). The 2008 FMP improves on the 2003 FMP in that the area of

MW1 (mixedwood with a minimum of 20% jack pine) is projected to increase, which would shift the forest in the direction of the historical condition. The long-term direction set forth in 2003 FMP would have decreased the area of MW1. While the MW2 forest unit is found on a wide range of site conditions, some of the MW2 sites are among the most productive. However it is generally not a desirable forest unit as it rarely the intended post-harvest stand type. The Company and MNR should consider the desirability of planning to increase the MW2 forest unit so significantly, and consider instead different treatment options that would create purer forest units, especially on the better sites.

The same information that is shown above in Figure 9 is re-cast as the percentage change in forest unit area from 2008 to 2108 and displayed in Figure 10, where it is contrasted with the analogous information from the 2003 FMP. In the case of the 2003 FMP projections, the start and end years are 2003 and 2103. (The data from the 2003 FMP came from FMP-11 whereas Table FMP-7 provided the data in the 2008 FMP.)

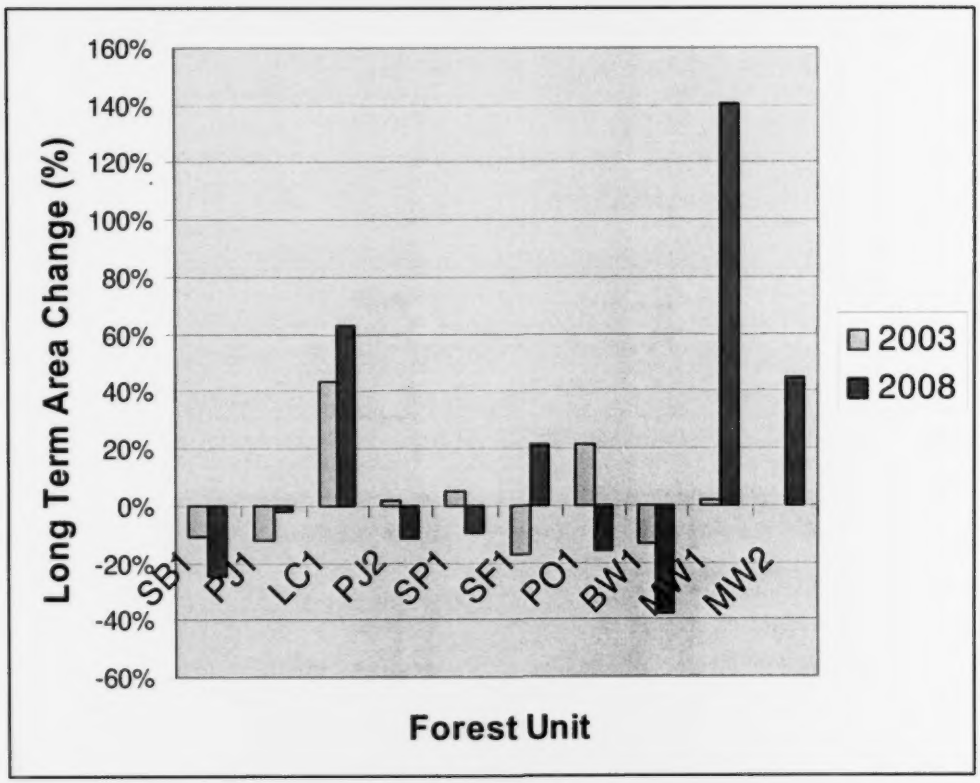


Figure 10. Percentage change in planned forest unit area in the 2003 and 2008 FMPs.

The 2008 FMP shows a significant 140% increase in the area of the MW1 forest unit, and the area of MW2 (all other mixedwood stands) is forecast to increase by 45%. Not surprisingly, the area of all other forest units except for the LC1 and upland spruce-fir sites (SF1) are expected to decline. The PO1 forest unit, which formerly increased over the plan period but now is expected to decrease, does so due in part to a 20% reduction

in the proportion of area succeeding after harvest back to PO1. Poplar is also strongly affected by NDPEG; 13% of the harvested area is to accumulate in reserves, and most of this will succeed to either a mixedwood or upland conifer condition. The same factors are at work driving the decrease in the long-term area of white birch.

Wildlife Habitat

In the development of the desired features of the future forest, the planning team used the natural benchmark SFMM run as a basis for identifying targets for wildlife habitat and forest age-class characteristics. For wildlife habitat, the acceptable lower bounds of projected future values was set at no lower than 75% of the null run by 10-year term. This approach is an important improvement over the previous generation of FMP's (including the 2003 White River plan), in which future values were allowed to fall 20% below the lowest value ever projected during the entire 100 year null run. The present approach, of limiting lower bounds by term, provides for a trajectory of wildlife habitat values more closely approximating natural levels and limits the lower acceptable bound of values in a more constrained manner.

During the development of the 2008 FMP, the planning team responded to a concern expressed by a member of the public regarding habitat management for songbirds. Using provincial population trends (as determined by broad, scientific surveys), the planning team objectively evaluated the status of each of the 20 species of songbirds for which concern was identified. The planning team concluded that there was a basis for expanding the list of locally featured species used in the FMP to incorporate seven additional songbird species. For several of the species, habitat models already existed in the MNR's habitat matrix [11] and so it was relatively simple to add the species to those considered in the FMP. However, for several other species, the planning team either modified the MNR's existing model to make it more appropriate, or developed entirely new habitat models. The planning team's approach to evaluating the request, and responding by supplementing the list of locally featured species and developing/revising habitat models was very objective and forthright. The audit team applauds the planning team for responding in this manner.

Old Forest

The approach of restricting the lower bound of the projected future amount of old forest was similar to the approach used for wildlife habitat. The lower bound was identified by term, rather than over the entire 100-year model projection. However for old forest, the lower amount was set in many instances at 65%, rather than the level of 75% used for wildlife habitat. The plan explained that this was a trade-off between old growth levels and wood supply: "*The SFMM Task Team was allowed to achieve levels greater than or equal to 65% of the null model results by term in some circumstances. The deviation was permitted to aid in achieving a balance between contrasting values and issues at critical terms. The target levels were decreased in terms where the initial targets had a significantly negative impact on wood supply*" (FMP Section 3.7.1.1) Table FMP-13 shows that for most Forest units and for most time-steps in the projected future, the amount of old forest projected was less than 75% of the null run.

[11] Holloway, G., B. Naylor, and R. Watt. 2004. Habitat relationships of wildlife in Ontario. OMNR Science and Information Branch, Southern Science and Information Section and Northeast Science and Information Joint Technical Report No. 1.

This approach, and the fact that future levels were tied to the null run, will lead to a forest with a very different old-growth profile than the present one. Figure 11 shows projected future levels of old forest for several forest units, compared to the 2008 levels. The point of the figure is not to criticize the approach taken in the 2008 FMP, but to illustrate that the old-growth profile of future forest will be significantly different from that which exists at present. In spite of the fact that the modeling strategy allowed the level of old growth forest to fall to between 65 and 75% of the null run in many terms for many of the forest units, there is projected to be more old growth for a number of forest units, than exists at present. For some forest units, notably PO1, PJ2, and SB1, there is projected to be considerably less old growth. However, across all forest units, there is projected to be a net increase in the amount of forest, compared to 2008 levels for several decades into the future (until approximately 2068). This is because the projected future amounts are tied to the null run (in which old growth increases markedly in the absence of forest management) , and the fact that the present amount of old forest, is significantly less than that which would be expected naturally, as explained above (Section 3.3.3).

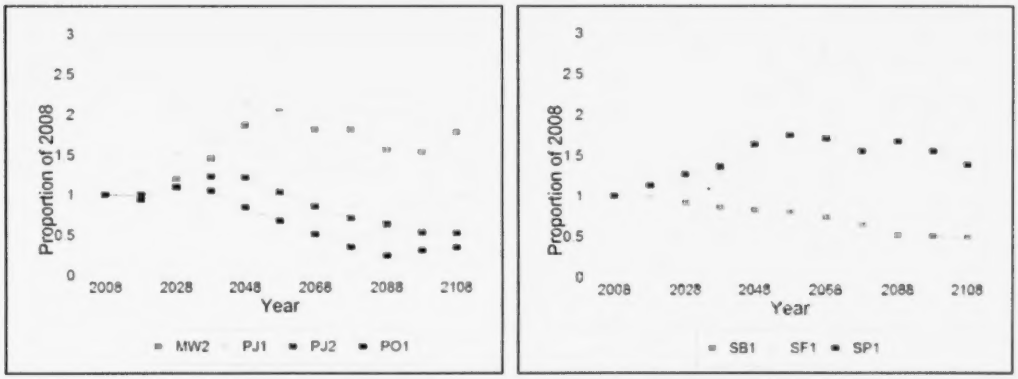


Figure 11. Projected future amount of old forest for several forest units, compared to the area present in 2008.

In sum, therefore, the planning approaches taken to identify target amounts of wildlife and old growth are an improvement over previous methods, and the old-forest profile will be significantly different in the future from that which exists at present. In keeping with the strategy of using a null run to inform the bounds of acceptable variation, we do not find issues with the approach or results of the planning process.

Crown Land Use Atlas Harmonization (CLUAH) Project

As described earlier, the White River Forest, and other SFLs in the Wawa District, have a history of conflict between users regarding the management of access. The 2003 IFA identified this as the most challenging issue facing the Forest. Basically, the conflict is between stakeholders who favor less restricted access on Crown land to permit more area to be available for hunting and fishing, and stakeholders whose livelihoods and preferences lead them to favour the use of access limitations.

In 2006, partly as a result of the previous IFA, but also in response to broad recognition that it was imperative to deal with the issue of access management in the Wawa area, the Ministry of Natural Resources initiated the CLUAH project. The CLUAH project is a land use planning amendment process that is being carried out under the Public Lands Act (RSO 1990). The project is completely outside the forest management planning

process and so is out of the scope of this audit. We offer no assessment of the CLUAH project here but discuss it to provide some context for this audit, and also to recognize that the issues it is grappling with continue to provide immense challenges for the management of the District's forested and non-forested Crown lands.

The mission of the CLUAH project, as described in its terms of reference[12], is "*to plan for the quality, diversity and reduction in potential conflict in recreational and industrial opportunities and to enhance and preserve biodiversity in the MNR Wawa District*". The project identified a series of objectives, the most directive of which was to: "*develop broader and higher level Crown land use options to guide the MNR Wawa District Crown Land Use Policy Atlas amendment process for the next ten years*". The intent of the project was not to examine individual decisions regarding access restrictions, but to review broader land use policy and area designations for unregulated Crown lands and waters in the District as a whole.

The CLUAH project has enlisted volunteers to form a working group that is convened through a third-party facilitated process. There is also a Project steering committee, and a Chiefs forum, working through an MNR-facilitated process. The process has been very challenging and there have been considerable disagreements between the volunteer members, with MNR frequently stuck in the middle, while trying to live within the mandate of the committee. Over the course of the past year or so, there have been public protests against the CLUAH process, newspaper columns criticizing it, and dissention amongst committee members. It is clear that some interests on both sides of the land use debate in the District have strongly entrenched and opposing views. As noted earlier, several members of the WRACC do not seem to have confidence that the results of the CLUAH project will address their concerns regarding access management.

There are at present draft majority and minority reports, presenting different options for land use designation changes in the District, and also reflecting the absence of unanimity amongst those working in the CLUAH process. The original schedule for release of the CLUAH project results was May 2008, but given the difficulties encountered, it has been rescheduled for March 2009. The CLUAH project has been very demanding on MNR staff and on the members of the public who have participated. While it seems that land use designations and access management will continue to pose challenges in the management of Wawa District's Forests, it is hoped that the efforts of the CLUAH project will mark a watershed event for the District in its land use management efforts.

3.3.5 Operational Planning / Planning of Proposed Operations

Timber Harvest

The allocation of the Allowable Harvest Area (AHA) is complex and it involves translating the results from a non-spatial projection of forest operations and the development of the forest into a spatial context, where there are many factors to consider that were invisible in the non-spatial analysis. The 2008 FMP provides a good description of some of the challenges and the reasons for them. The planning team was required to weigh public comments, guidelines about the proportion of clearcuts greater than 260 ha, a desire to move towards the target disturbance size frequency profile, and many other factors in

[12] Ontario Ministry of Natural Resources, Wawa District. 2006. Crown Land Use Atlas Harmonization (CLUAH) Project Terms of Reference. October 2006.

order to develop an appropriate allocation. It was not possible to develop an allocation that conformed exactly to the area by age class and forest unit prescription developed by SFMM – some age class substitution was required. The guidelines and the necessary exceptions to these guidelines are described in the 2008 FMP.

A partial indication of the quality of the allocation will be the number of FMP amendments and AWS revisions to amend aspects related to the allocation. During the 2003 FMP period, there were no amendments that reflected difficulty with the allocations.

Silviculture

Forecasts for renewal, site preparation, tending, and renewal support activities in the 2008 FMP were reasonable and were consistent with the selected management alternative. The SGRs in the 2008 FMP were found to be consistent with the Silvicultural Guides. The preferred SGRs for each forest unit were reasonable and appropriate for the site conditions on the WRF, and the SGRs had been updated since the 2003 FMP. The natural and post-harvest successional trend inputs to the SFMM modeling, as described in the FMP Section 6.1.6 "Analysis Package", appeared to be appropriate for the White River Forest. Silvicultural inputs into the FMP modelling (successional rules and yield curves) used an appropriate balance of science, field calibration data and local knowledge. Forecasts for renewal, tending, and renewal support were reasonable, and were consistent with the Preferred Management Strategy, as well as with the local site conditions. The silvicultural forecasts and SGRs for the 2003 FMP for the WRF were previously reviewed during the 2003 independent forest audit.

As in the 2003 FMP, there were no exceptions to the Silvicultural Guides listed in the 2008 FMP. The text of the FMP does include some discussion of commercial thinning of jack pine, which would be an exception to the current Silvicultural Guide, as a possible future treatment option for the PJ1 and PJ2 forest units, but no treatments were scheduled within the term of the FMP. The plan indicates that should implementation of this treatment be considered in the future, an FMP amendment and monitoring plan would be developed at that time, as required.

AOCs

The AOC prescriptions used for the Forest were found to be comprehensive and thoughtful. Documentation of the AOC prescriptions in the supplementary documentation of the FMP meets the FMPM requirements related to description of the natural feature, operational aspects of implanting the prescription, conditions related to operational roads, and monitoring. None of the prescriptions identified in the FMP are classed as exceptions.

The number of unique AOC prescriptions increased considerably to 36 from the 17 used in the 2003 FMP. The increase in number is due to recognition of the need for greater specificity in managing some types of values that were treated under a single prescription in 2003 and to the inclusion of values not recognized in the 2003 FMP. An example of greater specificity is that coldwater lakes and un-surveyed lakes are recognized distinctly in the 2008 FMP, whereas in 2003 they were lumped under a single prescription. An example of recognition of new values is the inclusion of prescriptions for large and small stick nests in the 2008 FMP, whereas these values were not identified specifically in the 2003 FMP.

The previous IFA described some issues related to the proximity of the Forest to Pukaskwa National Park. During the period examined by the previous IFA a small harvesting trespass occurred into the Park. In addition there was significant concern amongst some Park staff that the development of road 770 would have the potential to impair aspects of the Park's ecosystems. The rapport between Park staff and the Company was rather tenuous at times; this is best exemplified by the fact that the Park submitted a request for an individual environmental assessment of the 2003 FMP. Over the course of the present audit term, Company and Park staff have made significant efforts to improve their working relationship. One means by which this has been achieved is through the development of a "Zone of Cooperation", which extends 5,000 m beyond the Park boundary. An AOC has been developed to apply to operations within the "Zone of Cooperation". The AOC prescription requires Domtar staff to contact Park staff prior to commencing any operations within the zone, and consult on ways to implement planned management so as to ensure there will be no impact on the Park.

Collection of Values Information

In the course of normal FMP preparation, planning teams have been provided with funding specifically to survey areas which are anticipated to be operated on in the coming plan. Although, funding is provided from Regional Offices to Districts through MNR's Field Services Division on an annual basis, because of limits in funding, it is targeted to plans under development. This leads to "pulses" of funding being available on individual SFLs. Once the pulse of funding is used, additional FMP funding is typically not available until the next plan is being prepared. Although forest management planning is now based on ten-year plans, a five-year cycle will still be used for key aspects of operational planning and so it is anticipated that MNR funding for values surveys will continue to be available every five years. Given that values surveys are generally flown one or two years prior to the onset of operations for a five-year period, it can occur that the values data providing direction for operations are up to seven years old[13]. As described in section 3.3.8, several plan amendments were required to accommodate new values found during the course of plan implementation.

In the interval between when values surveys are conducted and operations occur, some values (most often stick-nests) disappear (i.e. they, or the trees in which they occur, are blown down) and others are established (i.e. new nests are built). The older the values data, the greater is the potential to both "protect" values which no longer exist and omit protection of newly-established values.

Furthermore, given that there are almost always changes in the areas selected for operations during the course of plan implementation, surveying for values several years in advance will likely result in instances in which values data have been collected for areas which will not be the subject of operations, and other areas which receive operations may not have had values surveys. Although MNR and company staff record values which are discovered during the course of other activities on the Forest, this is not sufficient to make up for the inadequacies of the present system which relies on a "pulse" of values survey funding every five years. The audit team believes the MNR should provide funding for values surveys on a more rational basis.

[13] The data could be seven years old for areas which were being operated on in the fifth year of a plan and the values data were collected two years prior to the initiation of the plan. Although this is the most extreme scenario it can and does occur.

We note that this is a systemic issue within the MNR as a number of other audits over previous years have raised this point. Furthermore, we note that the report of the Forest Process Streamlining Task Force[14] (a forest industry and MNR group charged with identifying opportunities for improving efficiency of the province's forest management process) also identified this as an area in need of improvement and made the recommendation that: "*Funding for values data collection projects, including entry of data into the corporate data repository, should generally be provided to MNR Districts on an ongoing annual basis rather than be tied to the preparation of an FMP.*" Recommendation # 7 is made to draw continued attention to this need.

Recommendation # 7

Corporate MNR is to ensure that adequate funding for values collection is made available more frequently to maintain currency of information used in values protection.

Marten Habitat

As the FMP notes, in addition to sustaining marten populations, the provision of habitat as provided for in the Marten Habitat Guide[15] is to also intended to provide habitat for other species with old forest affiliations, such as barred owl, northern goshawk, pileated woodpecker, and many others. As the requirements related to marten habitat are the main means through which the forest management planning process deals with management of areas of contiguous blocks of (primarily) old forest for the provision of wildlife habitat, it is described here is some detail.

Management of marten habitat in Ontario takes direction primarily from the MNR's Marten Guide. An Interpretation Note[16] clarifies and further explains some elements of the Guide. There are two main aspects of the landscape-level direction of the Guide: that designated marten habitat be 1) of appropriate forest composition, and 2) arranged in large core areas. The Guide differentiates between capable and suitable marten habitat and these qualities are used to direct habitat requirements. Capable forest types as those which "at maturity, support a spruce, fir, or cedar dominated or mixedwood forest condition". The Guide describes that suitable conditions exist within capable stands based on further definition of the vegetation community, the overstorey composition, canopy closure, and height (as a proxy for age). The Guide further directs that suitable marten habitat should be arranged in "core habitat areas" between 30 and 50 km^2 [3,000 ha – 5,000 ha] in size."

In simple terms, the Marten Guide directs that between 10-20% of the forest should be maintained in large blocks of mature conifer to provide habitat for marten. The Interpretation Note provides flexibility around the requirement for the size of the blocks, by noting that "sub-optimal" cores as small as 1,000 ha are permissible where the condition of the Forest is insufficient to meet the 3,000-5,000 ha core requirements. The desired level of habitat, identified in the objectives of the 2008 FMP, reflects the

[14] Forest Process Streamlining Task Force. 2006. Final Report. 69 p.
[15] Watt, W.R., J.A. Baker, D.M. Hogg, J.G. McNicol, and B.J. Naylor. 1996. Forest Management Guidelines for the Provision of Marten Habitat. Ontario Ministry of Natural Resources. Queen's Printer for Ontario.
[16] Ontario Ministry of Natural Resources. 2004. Forest Management Guidelines for the Provision of Marten Habitat Interpretation Note. Sept. 30, 2004.

requirement of the Guide: "*To maintain 10 to 20% of the forest, which has the capability to produce marten habitat in suitable conditions in core areas.*"

In the preparation of the 2008 FMP, marten cores were developed using MNR's Ontario Wildlife Habitat Assessment Model (OWHAM) software specifically intended for this purpose. Following MNR's requirements, the plan identifies marten core areas on the forest up to 60 years in the future. The approach taken by the planning team involved somewhat of a trade-off of quantity vs. quality over the course of the marten habitat planning horizon. For 2008, 20 cores were identified; the cores comprised almost 87,000 ha, but the average quality of the cores (defined as the proportion of the total terrestrial area that was in suitable condition) was only 44%. The portion of the forest that was capable of producing marten habitat which was maintained in suitable cores was 11%. The trade off of quantity vs. quality is evident in Table 5, where the area of cores declines over time, but their quality increases. At each time interval, the proportion of capable area maintained in suitable condition in cores meets the 10-20% requirement of the plan's objectives.

Table 5. Quantitative description of marten core area.

Deferral period (years)	# Cores	Total Area in Cores	Capable Area in Cores	Suitable Area in Cores	Ave. Core Quality	Percent total capable in suitable cores
20	20	86,712	63,040	36,733	0.44	11%
40	18	79,295	57,949	49,809	0.65	15
60	14	63,256	45,946	41,496	0.69	13

Figure 12 shows the planned marten cores over the next 60 years. Evident from the figure is that the cores have a uniform spatial distribution, with all parts of the forest containing core habitat. Also, the cores are generally non-linear in shape, and therefore interior area is maximized relative to the total area of the core. In sum, therefore, we believe that the marten core areas on the Forest were well planned, and meet the requirements of the MNR's guidance material.

3.3.6 FMP Submission, MNR Plan Review and Approval

Timelines in the original TOR were in accordance with FMPM requirements. However, comparison of target dates in the TOR with actual checkpoint achievement reveals that delays occurred with respect to all six checkpoints specified in the FMPM. The most significant delays were experienced in relation to Checkpoint 5 *Support for Proposed Management Strategy* and Checkpoint 6 *Preliminary Endorsement of Long-Term Management Direction (LTMD)*. Review of the minutes of planning team meetings indicates that planning inventory delays, marten core development, review of succession rules, and difficulty in addressing Required Alterations (RA) for the LTMD all contributed to delays up to that point. However, planning team members also cited efforts to reach internal planning team consensus as a factor contributing to the delays (Section 3.3.1).

In addition, there was some confusion regarding the actual documentation requirements for various checkpoints as these were not explicitly defined in the FMPM. This resulted in a long delay in receiving Checkpoint 6 endorsement from MNR which did not actually occur until just before the First Information Centre. This put the planning team in the

position of having to keep moving forward with plan development in the absence of MNR endorsement. However, differences in interpreting these checkpoint requirements were overcome through the hard work and dedication of planning team members. Since then, the MNR Northeast Region has provided guidance to help 2010 planning teams avoid such confusion in the future.

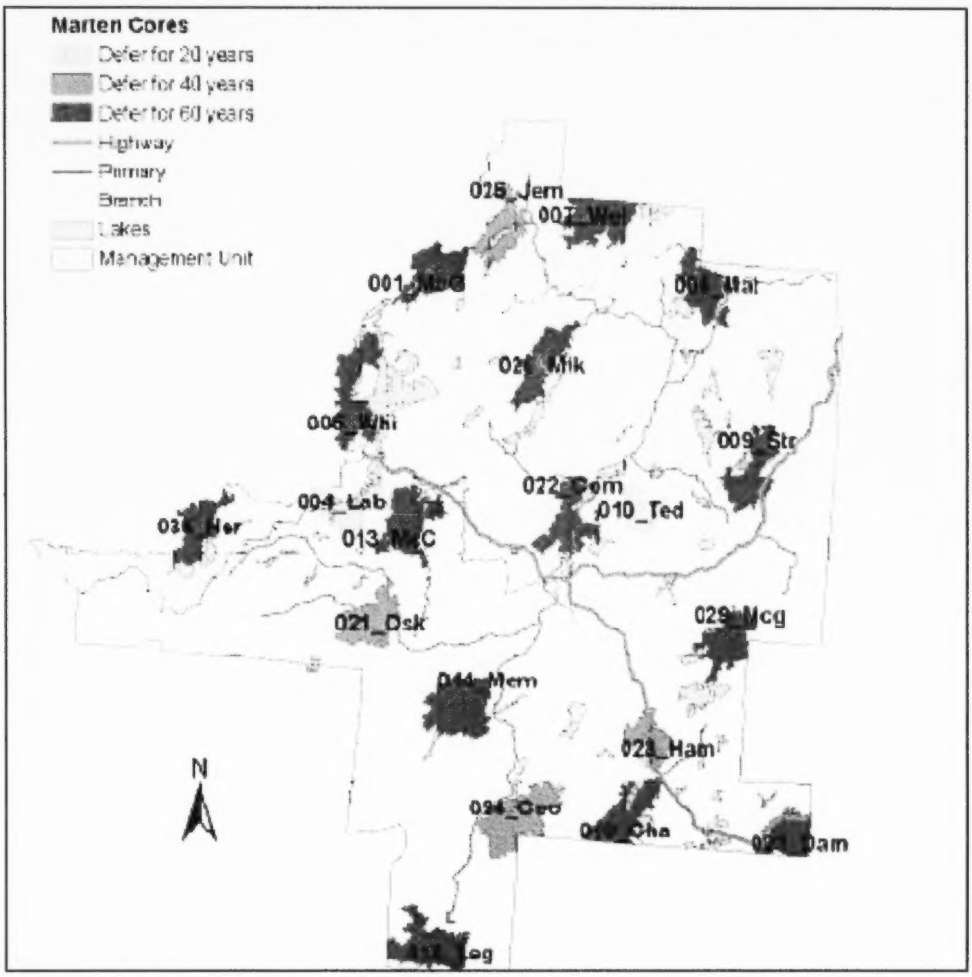


Figure 12. Planned marten cores over the next 60 years (From Figure 20 in the 2008 FMP).

It has already been noted that the List of Required Alterations for MNR Endorsement of the LTMD was to some extent difficult for the planning team to address. However, this list was developed to satisfy a need for a checklist review mechanism that is not defined in the FMPM. Although there may be some appeal in formalizing this procedure, this would require revisions to the FMPM and planning team members believed that yet another formal list of required alterations was not required. Interestingly, this list of required alterations was certified by an MNR RPF even though there is no formal requirement to do so.

Both the Preliminary List of Required Alterations (PLORA) and the Final List of Required Alterations (FLORA) were certified by an MNR RPF as required by the FMPM. An online Regional FMP Review Tool was used to enter and record RAs and comments. Although this system has many apparent benefits, the automated numbering system was very confusing and made it difficult to even count the total number of RAs or sort them in logical order. Also, the cover letter for the FLORA was incorrectly dated as October 4, 2007 instead of the date (January 15, 2008) on the certification page (Section 3.3.6).

Interviews with Domtar and MNR staff indicated that most of the RAs were reasonable and well incorporated into the plan. However, evidence suggests that some difficulties were encountered with the quality of many RAs and comments. For example, the following excerpt from the minutes of a planning team meeting was made in relation to the List of Required Alterations for the LTMD:

> *... the Planning Team discussed that the final copy of the LTMD. Discussed nature of the required alterations. Completion took about eight weeks to submit due to complications in the List of Required Alterations: duplicated, redundant, and/or inconsistent required alterations; inappropriately categorized required alterations; and required alterations inconsistent with prior decisions/agreements.*

Further to this, the audit team's review of the PLORA and FLORA confirmed that many RAs resembled comment or opinion rather than statements of explicit requirements. Also, Domtar responses to a significant number of RAs suggests that new planning process requirements were not fully understood by some MNR staff and/or that staff asked for changes that may have exceeded the requirements of the FMPM.

Although specific training direction was provided to 2008 planning teams in respect to the development of appropriate RAs, records suggest that several District reviewers may not have received this training. Furthermore, it is difficult to ascertain to what degree the certifying MNR forester was able to resolve any apparent discrepancies or redundancies. Thus, it is the audit team's belief that unfamiliarity with FMPM requirements and unrealized training opportunities were primarily responsible for difficulties encountered in relation to the development of RAs. This situation should likely improve over time as MNR staff gain familiarity with new requirements and training messages are repeated to members of future planning teams.

The Forest Management Plan Contributors Page for the 2008 FMP listed 27 plan reviewers, 10 of whom contributed RAs to the PLORA and FLORA, and 17 who did not actually provide any input. It also failed to list three additional individuals who did contribute to the PLORA and FLORA. In all, 27 reviewers were listed but only 13 provided comments, and only ten of these were listed. Of the thirteen individuals who provided comments, only two were identified as planning team members and none as planning team advisors.

Although the listing of non-contributing "reviewers" did not materially affect development of the plan, it is misleading to suggest that so many individuals participated in its review. The FMPM does not explicitly state that the list of Forest Management Plan Contributors should be accurate, however, one should expect it to be so since the plan was certified and recommended for approval by the MNR District Manager and approved by the RD.

Finally, the Title, Certification and Approval Page for the 2008 FMP that was reviewed by the auditors contained the requisite seals and signatures but it was filed under separate cover and had not been inserted into the MNR copy of the approved forest management plan.

3.3.7 Contingency Plans

The 2003-2004 Annual Work Schedule for the White River Forest was written as a six-month Contingency Management Plan (CMP) in anticipation of delays in the production of the approval of the 2003 FMP, stemming from implementation of the Issue Resolution Procedure and final revisions being made to the draft FMP based on MNR's Final List of Required Alterations. This was necessary to prevent curtailment of harvest operations from April 1, 2003 to September 30, 2003. Ultimately, eleven parties requested that the issue resolution procedure be invoked to address their individual concerns and the time taken to complete all ten steps of the issue resolution process took much longer to complete than originally anticipated. The CMP met the content, process and public consultation requirements of the 1996 FMPM, which was then in force.

3.3.8 FMP or Contingency Plan Amendments

There were only 14 FMP amendments for the five-year term of the 2003 plan. Two were to required to append plan components (HPCHV & revised SEIM), four to modify/add AOC prescriptions, three were related to primary and branch roads, three were to add new water crossings and upgrade flow calculations (Q10 to Q25), one for the renewal of trespass area, and one for Ontario Hydro was not required. Of these 14 amendments, 13 were classified as administrative and 1 as minor. The latter was required to reflect the agreement between Parks Canada, MNR-NER and Domtar regarding mitigations to reduce the perceived ecological impacts of Road 770 associated with the issue resolution process.

Also of interest, one amendment was required to accommodate an exception to the Osprey Guide allowing forest operations within the heavy development buffer zone (200 m to 600 m) of an occupied nest. Three more amendments were also required to identify new values (eagle's nest) and to change the status of two water quality AOCs from "no-harvest reserves" to allow for "modified operations". Finally, three amendments to add new water crossing locations and upgrade culvert flow calculations were required because the water crossing binder containing this annual planning information was identified as part of the FMP. Otherwise, only AWS revisions would have been required.

FMP amendment requests categorized by the MNR District Manager (DM) after the effective date of the 2004 FMPM were prepared in accordance with Part C, section 2.0 of the 2004 FMPM using the new title, certification and approval page for administrative amendments. Documentation for amendment requests was thorough and contained the requisite descriptions and summaries, although documentation for one amendment was missing from the Company records.

Of the 13 administrative amendments, all were certified by an R.P.F. and approved by the MNR District Manager or Area Supervisor as required by the FMPM. However, these were certified by four different individuals and it was not entirely clear who was acting in the capacity of plan author at the time of certification. The minor amendment,

however, was clearly certified by the plan author and approved by the DM and RD, as required by the FMPM.

Amendments were generally reviewed and approved by MNR within 2 to 4 weeks, although the approval process for some took from 5 to 14 weeks. Requisite opportunities for public inspection were provided for the single minor amendment.

The FMP amendment master list in the front of the Company FMP amendment binder was up-to-date (albeit with handwritten entries only for Amendments 10 to 14). The master list in the MNR FMP amendment binder was also up-to-date. Although these lists were independently maintained, they were both correct and each met the FMPM requirement for the maintenance of an up-to-date list of amendment requests. However, auditors noted the existence of other versions of the master list. For example, an older version of the master list provided by the Company was missing reference to Amendments 12 to 14 while a third version of the list was up-to-date with all 14 amendments but contained abbreviated information derived from the first list. In the future, MNR and Domtar should consider maintaining a single list to avoid confusion.

MNR also maintained a binder containing FMP amendments and AWS revisions for the five-year term of the 2003 FMP. A master list of amendments and revisions was located in the front of this binder. With respect to amendments, it was up-to-date and corresponded to the Company list of amendments in the front of the Company binder. The material in the MNR binder also appeared to be complete in comparison to the Company binder with original title, certification and signature pages, request forms and supporting documentation.

Finally, the FMPM requires that MNR distribute copies of amendments to various locations specified within the FMPM (e.g., MNR Region, MNR Forest Management Branch, MOEE Regional Office and a location in Toronto provided by MNR). Evidence provided by District MNR Staff indicated that copies of all amendments were forwarded to the required locations and that MNR is up-to-date in meeting this requirement, even though the submission of amendments occurred once in aggregate instead of annually as required by the FMPM. As of April 1, 2008 the electronic submission of all amendments must occur through the FIM portal so specific actions will no longer be required by the District to meet this requirement.

3.3.9 Annual Work Schedules

The AWS produced for 2003/04 and 2004/05 were written in accordance with the requirements of the 1996 FMPM and contained the requisite components. They were consistent with the 2003 FMP. The 2003-04 AWS was also written as a six-month contingency management plan (see Section 3.3.7).

Subsequent AWS' were written in accordance with the requirements of the 2004 FMPM. Although all three of these AWS' contained the requisite components and were consistent with the 2003 FMP, they did suffer from some minor shortcomings. For example, their text did not explicitly describe how stand-level residual requirements were to be addressed during the implementation of harvesting operations as required by the FMPM. Instead, a simple reference to *Section 2.4.3.2.2 of the 2003-2023 FMP for the White River Forest* was provided.

Also, use management information for existing and planned ***operational*** roads was not included in Table AWS-4 of the 2005/06 – 2007/08 AWS's as required by the FMPM. However, with completion of the roads inventory for the 2008 FMP, this deficiency has been fully addressed and the required information is included in the 2008/09 AWS.

With respect to requirements for water crossing planning and review, Table AWS-5 contained a full listing of crossing locations with complete information regarding structure type, construction conditions (culvert sizing) and requirements for future removal. The completion of the Fisheries Act review for every identified culvert location in the FMP reflects well on MNR's commitment to the water crossing planning and review process.

Perhaps most interestingly, it was Domtar's practice to include as much harvest area as possible in Table AWS-1. For example, 25,080 ha were allocated for harvest in the 5-year term of the 2003-2023 FMP, yet 24,260 ha (97% of the FMP planned harvest area) was scheduled for harvest operations in the 2004/05 AWS (see Table 6). Similarly, the three subsequent AWS scheduled the "remaining" FMP harvest allocations that had not already been harvested or otherwise been considered for harvest and bypassed. Although these areas became progressively smaller, they were still quite unrealistic in comparison to actual harvest levels (see Table 6).

Table 6. Planned vs. Actual Harvest Area and Volume by AWS Year.

AWS	Planned Harvest Area from Table AWS-1 (ha)	Actual Harvest Area from Table AR-1 (ha)	Planned Harvest Volume from AWS-2 (m^3)	Actual Harvest Volume from AR-4 (m^3)
100% of FMP	25,080		3,288,087	
20% of FMP	5,016		657,617	
2003-2004		2,717	655,000	324,657
2004-2005	24,260	5,418	655,000	411,404
2005-2006	17,348	4,239	655,000	445,268
2006-2007	12,051	2,128	655,000	345,062
2007-2008	7,817		655,000	

Even though there was no reasonable expectation that so much area could be harvested in any given year, this practice provided operational flexibility and entirely eliminated the need for harvest-related AWS revisions. The disadvantage, however, was that no meaningful comparison could be made between the actual harvest areas reported in Table AR-1 and the planned harvest areas scheduled in Table AWS-1.

In contrast, planned harvest volumes in Table AWS-2 and FRT revenues in Table AWS-6 were simply based on 20% of forecast harvest volumes in the 2003 FMP with no adjustments made on an annual basis to reflect changing market conditions. Although actual volumes reported in Table AR-4 were only somewhat less than planned volumes in some years, no useful comparison could be made between planned harvest areas and volumes. Furthermore, the FRT revenues forecast in Table AWS-6 were simply based on AWS-2 and as such had no relationship to actual harvest levels.

Interestingly, the FMPM does not explicitly require that any intuitive relationship exist

between the planned harvest area in Table AWS-1 and the planned harvest volumes in Table AWS-2. Instead, the FMPM requires each of these tables on its own to be "consistent" with the FMP while providing allowance for additional harvest area in order to provide flexibility for unforeseen circumstances.

Clearly, the District has exercised considerable latitude in this regard by allowing Domtar to allocate so much harvest area within each AWS. In fact, that this can occur without concern raises the whole question of AWS purpose and utility. One reason cited for needing to schedule so much harvest area in each AWS was the large size of harvest blocks in the 2003 FMP and the difficultly in closing them off. If a large harvest block was suspended, it would be re-scheduled in its entirety so that clean-up could occur.

However, harvest blocks in the 2008 FMP have been made smaller and can be closed off more easily within FOIP. This should reduce the need to suspend blocks and reschedule them in a subsequent AWS. Appropriately, the District has indicated that it will provide less latitude in allowing Domtar to schedule so much area in the AWS and will actively discourage this practice in the future. Indeed, no excessive scheduling of area occurred with the 2008/09 AWS.

Furthermore, there was no evidence to suggest that any stakeholders were frustrated with the same areas being repeatedly scheduled for harvest from one AWS to the next. In fact, WRACC members attested that Domtar staff did an excellent job of providing monthly operations updates to the WRACC so that they always knew the location of operations. And as previously mentioned, this approach clearly reduced the frequency of AWS revisions and saved valuable time for Domtar and District staff.

Regarding silviculture, the FOPs contained in the AWS for the audit period were found to be consistent with the SGRs contained in the 2003-2008 FMP.

There were only 16 AWS revisions for the five-year term of the plan (2003-2008). Four were required to append AWS components including the Aerial Spray Plan & Forest Fire Prevention and Safety Plan, three to identify new values (eagle's nests) and modify AOC prescriptions, four to accommodate changes to primary and branch road corridors, two to add new water crossing locations and upgrade flow calculations, two to add regular and salvage harvest area to the 2003-2004 AWS/CMP, and one to add area for site preparation. This is a comparatively low number of revisions and can be attributed, in large part to the scheduling of so much harvest area in each AWS (see Table 6 and discussion). On other forests, it is not uncommon to encounter upwards of 100 or 150 revisions for the five-year term of the plan.

AWS revisions were properly certified and approved by MNR in a timely manner. Domtar appended copies of revisions to each AWS as required by the FMPM while MNR maintained a separate binder containing all FMP Amendments and AWS Revisions for the five-year term of the FMP. Documentation was complete with original title, certification and signature pages, request forms and supporting documentation, except that one revision was missing from a Domtar AWS. Both MNR and Domtar revision summaries did contain errors, although it is not a requirement of the FMPM to maintain a master list of AWS revisions.

3.4 Plan Implementation

3.4.1 Plan Assessment

Most of the information used to develop the 2003 FMP was accurate, or sufficiently so, with a couple of notable exceptions. The first is that the yields for poplar had been overestimated by approximately 30% and by much more than this for white birch. This was identified and a recommendation issued in the 2003 IFA, and the yield curves were revised and reduced by roughly 30% for 2008 FMP.

It also emerged during the plan implementation that a significant proportion of the renewed area that was declared free-to-grow was assessed as belonging to a forest unit other than the one that was predicted. This was pointed out in the Trend Analysis developed by the Company (see Appendix A).

3.4.2 Areas of Concern

During the audit, approximately 80 AOCs were visually examined either from the ground or from the air during the helicopter portion of the site inspection (Figure 13). We saw no instances in which incorrect prescriptions had been applied. This is consistent with the results of the compliance inspections, described in section 3.6.1, in which no instance of non-compliance related to AOCs was reported during the audit period.

Figure 13. Well implemented water quality AOCs (at field inspection site #10 on Road 402, inspected from the air)

3.4.3 Harvest

The Company's harvest operations were only active for roughly three of the five years in the 2003 FMP period. As described earlier, the White River sawmill was shut down for seven months starting in June 2003 and then again in the spring of 2007 until the present (Sept 2008). There is no scheduled date for re-starting the mill. The Company's harvest operations were also shut down during the periods when the mill was closed, most recently closing January 2007 until the present. The Company's White River operation is one of the few remaining in the province to have a unionized workforce in the bush as well as in the mill – this means that the majority of people working in the forest harvest operations were Domtar employees. Domtar staff cut almost all of the conifer harvested on the forest, and contractors cut a significant amount of hardwood.

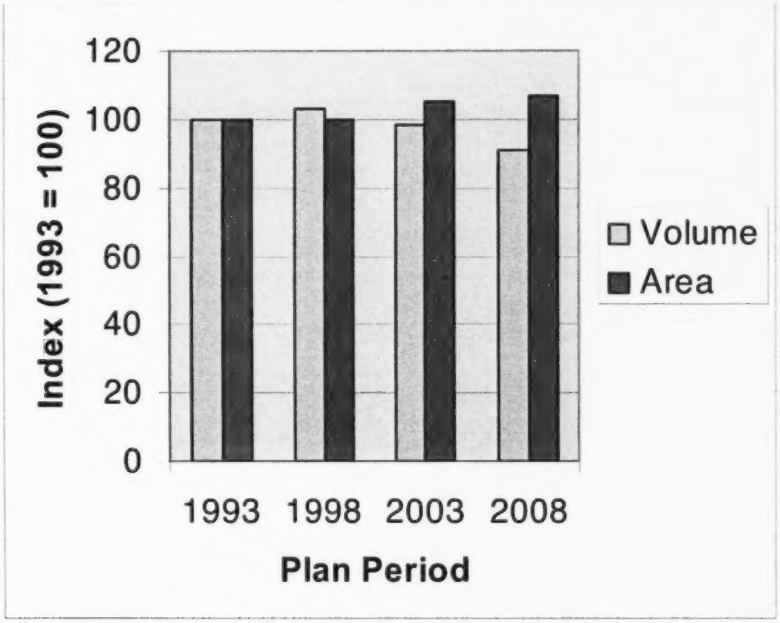


Figure 14. Relative Planned Harvest Area and Volume Levels.

The planned harvest area throughout the 2003 FMP period was 25,076 ha, or 5,015 ha/yr on average. Figure 14 shows that this was very consistent with the planned harvest levels during the previous ten years and during the term of the 2008 FMP. In Figure 15, the planned harvest area and volume in the 1993 TMP period was scaled to 100 and subsequent values were indexed relative to that plan period. The graph shows that the planned harvest area has risen slightly while planned volume has declined.

This reflects a trend to reduced yields, both in planning and in practice, as is shown in Figure 15. The decline in planed volume in the 2008 FMP is due in part to the reduction in estimated hardwood yields in the 2008 FMP; the increasing trend to leaving green standing trees on harvest areas has also reduced per hectare yields by anywhere from 2 – 5%. These impacts also show up clearly in Figure 14, where the figures for the 2008 FMP show a decline in relative planned harvest volume and an increase in planned harvest area.

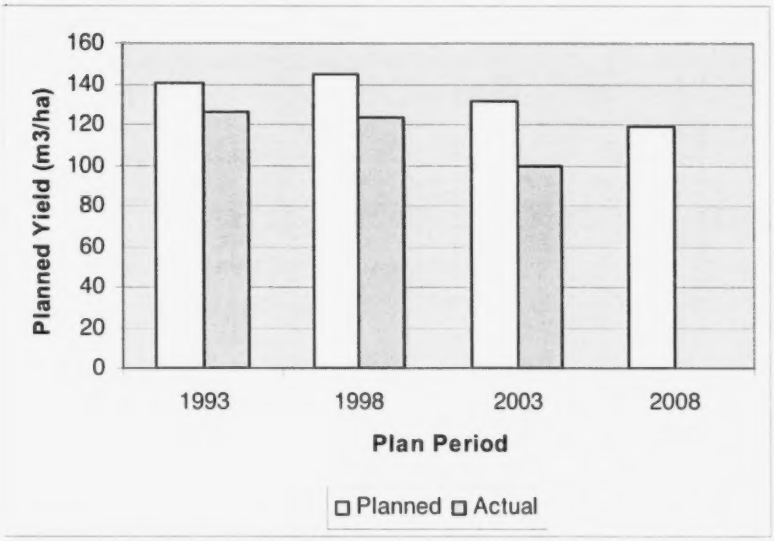


Figure 15. Planned and Actual Average Yield per Hectare.

During the 2003 FMP period, harvesting only approached the anticipated average level in two years – 5,417 ha were cut in 2004/05 and 4,239 ha were cut in 2005/06. In 2002/03 and 2006/07, the annual harvest averaged 2,400 ha. The data are not available yet for the final year of the plan, but the harvest will be no more than 323 ha, which is the area licensed to Pic River Development Corp that was bridged into the 2008 FMP period. If all of the PRDC area is cut, the total harvest area will have been 14,825 ha (averaging 2,965 ha/yr), or 59% of the planned level.

The actual harvest volume was also well below the planned level during the 2003 period. Excluding the volume harvested in 2007/08, which was not known at the time of the field assessment (September 2008), the volume that was received was 46% of the planned level. The planned average annual harvest volume of all species was 657,617 m^3/yr, but the actual harvest averaged only 305,210 m^3/yr. This level of achievement is proportionally lower than the harvest area achievement, reflecting the overly optimistic hardwood yield curves, which were identified as erroneous in the 2003 IFA and revised and reduced for the 2008 FMP. Indeed, 80% of the planned conifer harvest and 46% of the planned hardwood harvest were actually cut during the 2003 plan period. The low level of hardwood harvest also reflects the fact that the WRF was a secondary source of hardwood for other mills – the Limer mill stopped taking hardwood deliveries in fall 2006 (See section 3.8.3).

Figure 4 showed the average annual harvest volume by species in the past three plan periods. The relative proportion of poplar increased in 1998 as the Limer OSB mill started production, otherwise the relative proportion of species in the harvest mix has been quite consistent.

There was no salvage harvesting undertaken during the audit period. There was one fairly significant blowdown event, caused by a storm in July 2006, which most severely affected 178 ha of mature, largely poplar-dominated stands north of Pokei Lake. Since

Weyerhaeuser had stopped taking poplar deliveries in October 2006, the blowdown was not salvaged.

As discussed in section 3.5.2, Pic River Development Corp began to harvest on the WRF during the latter part of the audit period – the reader is referred to that part of the report for a fuller discussion.

The Company harvests by clear-cutting using the full-tree harvest method. The Company's operations were undertaken to a high standard. Although there were no recent harvest areas to observe, there was no evidence of wasteful practices in the field and in the compliance inspection reports.

In general, we saw very little undue soil disturbance during our field inspection, reflecting the good job being done in this regard by the harvest operators. Most harvested areas we viewed had minimal rutting, and no significant areas of erosion. Domtar's attention to this issue is reflected in the generally good performance we observed in the field.

However, we did observe signs of localized but significant rutting on one harvest block, which was being cut at the time of the audit. The site appeared to consist of variable terrain, including areas of moist and wet soils, which is where the rutting was observed. Domtar indicated that additional compliance monitoring and operator training, if necessary, would be conducted to minimize any further occurrences of rutting.

Snag retention was generally found to be adequate to good. The Company was required to implement the snag and green tree retention rules of the NDPEG partway through the audit period. During the site inspection we did view several sites with marginal levels of snags, however these tended to be older cuts, so the marginal levels of retention are likely attributable to a "learning curve" of operators implementing the snag requirements, or perhaps to blow-down of retained snags.

The audit team observed that the Company's slash management yielded very inconsistent results (See Figure 16). On the sites that were inspected, we would estimate that roughly one-third of the slash piles successfully burned, another one-third had been ignited but did not burn much, and the final third were either not piled or piled but had not been set alight. The slash takes up a considerable amount of area in the cutover and regeneration is delayed for decades (See Figure 17). Short of shifting to a cut-to-length operation, the most likely feasible alternative seems to be piling and burning the slash.

Other options that could be considered include moving some of the slash back into the cut block, moving the slash onto the in-block roads and breaking it up by site preparing the road (which could then be planted).

The Company hired the mechanical site prep operators to pile the slash, and so slash piling was limited to areas that received mechanical site preparation treatments. For example, the 05/06 AR reported that slash piles from 819 ha of cutover area were burned, which is roughly 20% of the area that could expected to be harvested during a period of normal operations.

Figure 16. A series of slash pile burns showing various degrees of success.

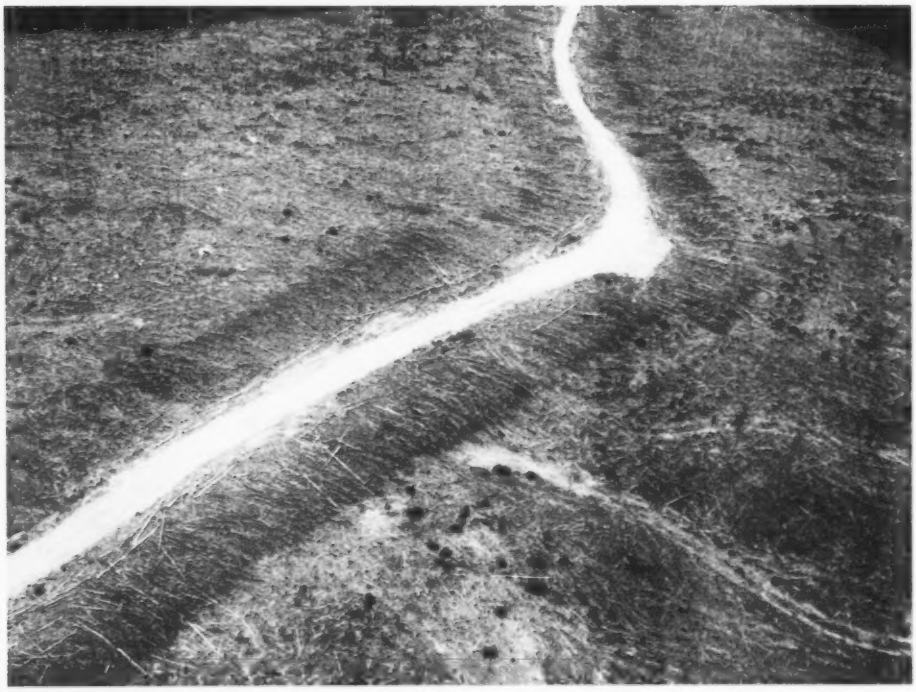


Figure 17. A recent cutover showing the extensive area covered by unpiled slash.

Recommendation # 8

> The Company is to review and improve the implementation of its slash pile management approach so that it is more effective at minimizing the loss of productive area across all forest types.

As SFL-holders look to reduce costs, slash pile burning is an obvious candidate. However, the cost of slash piling and burning is a small cost to pay for maintaining the value of the forest asset, since it effectively increases the production of the regenerating forest by 5 – 10%. Because SFL-holders can use FRT funds to pay for slash piling and burning, funding would not seem to be a limiting factor.

3.4.4 Renewal

Overall, for the sites that were observed in the field during the audit, the silvicultural treatments were consistent with the silvicultural ground rules and forest operational prescriptions. The boundaries and coverage of the mechanical and chemical site preparation (aerial and ground application), planting, and seeding projects that we audited were good. The treatments were well-matched to actual site conditions and appeared to be effective in meeting the silvicultural objectives. The treatment types and areas were well-matched to the areas mapped and reported in the ARs.

We visited one mixedwood site in Block 100 (basemap number 637541) where Domtar had conducted a trial project for mixedwood management. The treatments consisted of mechanical SIP, followed by chemical SIP by ground application, and then planting of white spruce. The chemical site preparation was done by ground spray in order to retain the hardwood residual trees, for their wildlife values, and also to enhance the mixedwood condition of the future stand. The residual stems were mostly white birch, with lesser amounts of trembling aspen. The white spruce stock was growing very well, with good survival, and appeared in excellent health. However, the site was very rich and would likely require further treatment to control the heavy regrowth of competing vegetation within 2 years. The purpose of the project was to investigate the cost and effectiveness of an intensive treatment, which was intended to result in a mixedwood condition for the future forest. From the audit team's perspective this was a worthwhile and commendable initiative. In order to ensure that the knowledge gained from this project is not lost, we suggest that the Company and MNR ensure that the silvicultural trial is followed through to completion, by completing any further tending treatments that may be required, and also ensure that the project treatments and relevant results are well-documented.

Natural Regeneration

During the audit period, most of the natural regeneration implemented on clearcut sites was for intolerant hardwoods (trembling aspen and white birch) on upland sites. The natural regeneration areas in hardwood forest units that we observed in the field appeared to be consistently successful.

The Company artificially treated all of the pine sites that were harvested, and most of the spruce as well. However, we visited one site in the area near the boundary of Pukaskwa National Park, which was within the "Zone of Cooperation" that extends 5,000 m into the

WRF starting from the Park boundary. There is an AOC for operations within this area that limits road construction unless no other alternative exists. This particular site consisted of an upland spruce site which had been harvested in the winter and left for natural regeneration. The area was not suitable for the natural regeneration of hardwoods, and stocking to conifer natural regeneration was low. The access restriction had the effect of limiting the silvicultural options in this area, since access for artificial treatments, including mechanical site preparation and tree planting, was not available. On some sites, natural regeneration treatments will simply not be effective. On this particular site, Domtar, noting the poor renewal, subsequently aerially seeded jack pine, without site preparation, in an effort to enhance the conifer stocking. Although some seedlings were visible on the roads, where there was exposed mineral soil suitable as seedbed, there was a minimal increase in conifer stocking over the entire area resulting from the aerial seeding treatment, due to the lack of site preparation. In this particular case, both treatments would be in contravention of the SGRs for that forest unit, but were the only options available.

This situation is not beneficial to either Pukaskwa National Park or the WRF in the long term, since it decreases the ecological integrity of the Zone of Cooperation and within the Park itself. Where it is required, access to harvested areas near the park boundary should be maintained long enough to conduct the appropriate artificial silvicultural treatments, which are properly matched to the site conditions. We believe that ensuring the appropriate regeneration of harvest areas in the managed areas in the White River Forest that are near the Park boundary, will give the best chance of maintaining the ecological integrity of the Park. In recent years, MNR and the Company have enjoyed good relationships with Park staff, and the audit team is confident that the Company and MNR will continue to work with Park staff to address the undesirable implications of these silvicultural treatments near the park boundary, and work towards achieving an appropriate balance between access control and good silvicultural practices. Company and MNR staff mentioned that they felt that it would be beneficial to go out for a day with Park staff to inspect the portion of WRF surrounding the Park and review what operations could be implemented there. The audit team agrees.

Artificial Regeneration
Tree Planting

Species choices for tree planting were generally well-matched to the site conditions. Domtar had done a good job of directing species within planting projects to appropriate microsites and ecosites, according to the terrain in the treatment blocks. During the first four years of the 2003 FMP term, the Company planted approximately 6.8 million trees on the White River Forest, which represented 69% of the four-year FMP forecast. This was an appropriate amount, given that only 59% of the forecast area was harvested during the FMP term. The relative proportions of black spruce, white spruce, and jack pine which were planted were appropriate for the forest units on the harvested area, and were consistent with the proportions forecast in the FMP.

Because the mill closure in 2007 significantly changed the labour component of the cost structure for planting, Domtar decided to delay the tree planting program for the year 2007-2008, accordingly, all the seedlings produced for that year were placed into cold storage.

Table 7. Planned versus Actual Tree Planting: 2003 – 2007.

Species	Number of trees: 2003-2008 FMP 5-year forecast, thousands	Actual number of trees planted (4 years), thousands	% of forecast achieved (4 yrs)
Sb	6,277	3,546	71%
Sw	1,000	701	88%
Pj	5,021	2,534	63%
Total	12,298	6,780	69%

A total of 1,264,200 containerized seedlings had been produced for that year. When it became apparent that the mill closure would continue indefinitely, Domtar attempted to find another user for the trees, either on another of Domtar's licences or another SFL, and at the same time performed quality tests on the planting stock. The tests revealed that the stock was root bound, and a significant portion of the trees had developed mould. Based on this result, it was apparent that the stock could not be used, and the decision was made to dispose of the trees. This is unfortunate, but the audit team believes that the company made reasonable efforts to use the trees, and is not at fault for the loss.

Seeding

Generally, the jack pine seeding treatments we observed in the field were of excellent quality. Density and survival of the seeded stock was acceptable in all cases, with the exception of one site adjacent to Pukaskwa National Park, which was seeded without site preparation. Some seeded areas which develop a higher density of jack pine seedlings may require pre-commercial thinning in the future.

Site Preparation

The choices of site preparation treatments that we observed in the field were appropriate for the site conditions, and the coverage and quality of the treatments was good. During the audit period, site preparation was conducted with a variety of mechanical implements, including powered disk trenchers and Bracke scarifiers. A small amount of chemical site preparation was also conducted on a mixedwood site, using a ground sprayer, as previously discussed.

In 2006/07, Domtar completed 1,152 ha of mechanical site preparation. Due to the decision to delay the tree planting program for the year 2007-2008, much of this site prepared area did not receive regeneration treatments. A seeding program of 263 ha was conducted in 2007/08, reducing the total of untreated site preparation to 889 ha. The audit team viewed three areas of this untreated site preparation totaling 378 ha. Two of the areas were still suitable for artificial regeneration treatments, and one area had re-grown with competing vegetation to the point where another site preparation treatment would be needed prior to planting or seeding. The proportion of area that will remain suitable for treatment will depend on the site conditions. Richer sites will re-grow to competing vegetation quickly, and poorer sites may remain suitable for treatments for several years.

3.4.5 Tending and Protection

The Company conducts pre-tending assessments, the results of which are used to identify areas within the blocks allocated for tending that do not require treatment, as well as areas where natural regeneration of hardwoods is the most appropriate method of renewal.

During the audit period, all of the cleaning treatments conducted by Domtar were done by the aerial application of the herbicide glyphosate, mostly on rich upland sites. In general, these tending treatments were effective. There were no compliance issues related to the aerial tending program during the audit period. Appropriate sites had been selected for tending treatments, and all sites that we assessed required tending to meet silvicultural objectives. Tending plans for herbicide applications had been prepared by the Company as per the regulatory requirements. All aerial herbicide applications conducted during the audit period were done using helicopters or fixed wing aircraft which were equipped with GPS systems to ensure accurate delivery of the herbicides. The cleaning projects observed by the Audit Team in the field had good boundary control and coverage.

Due to the shutdown of the mill and the reduced implementation of the silviculture program in the last two years of the audit period, the audit team had some concerns about outstanding regenerating sites that may require tending for effective renewal. However, in the current year (2008-2009), Domtar implemented a substantial aerial tending program of over 1,000 ha, which consisted of treatments applied to all areas identified by the company's tending needs assessments (i.e., part of Domtar's second year regeneration surveys).

Domtar conducted pre-commercial thinning on 286 ha of jack pine sites during the audit period, using Forestry Futures Trust funding. The prescriptions for these stands were appropriate for the stand and site conditions and the treatments had been well-implemented.

Protection Program

Protection involves preventing damage and mortality from insects and disease. The Canadian Forest Service, in co-operation with Domtar and the MNR, monitored valuable and susceptible areas such as tree improvement areas and prime timber. No treatments for the control of insect pests were required or implemented during the audit period.

3.4.6 Renewal Support

The Company has a good program for the collection and processing of cones and seeds, and presently maintains an adequate seed stock to support its artificial regeneration program through the next five years. At April 11, 2007, the Company had a seed stock of approximately 37.8 million black spruce, 14.7 million white spruce, and 53.4 million jack pine seeds for the WRF. Based on the amount of seeding and planting conducted during the audit period, approximately 30 million jack pine seeds are used in an average year, which means that there is approximately a two-year supply available. The supply of black spruce and white spruce seeds should be sufficient for seedling production for the entire of the 2008 FMP term.

The Company's program for growing trees for planting is also adequate, and we observed few problems with the quality of planted stock.

Domtar is a member of the Northeast Seed Management Association, which is responsible for establishing and maintaining seed orchards and other tree improvement initiatives. Specifically, Domtar is involved with the jack pine and black spruce tree improvement program whose purpose is to provide large quantities of high quality seed for the existing artificial regeneration programs and to improve the genetic quality of that seed for future regeneration. The program's overall objective is to produce faster growing and better quality trees by improving the genetic potential of the stock used in artificial regeneration. During the audit period, the Company continued maintenance of the Knowles and Vasiloff Township family tests, and the Hambleton Jack Pine and the Lastheels Black Spruce Seed Orchards. These sites are just beginning to supply improved seed for the production of planting stock for the WRF: 40 hl of jack pine cones were collected from seed orchards during the audit period.

3.4.7 Access

The only road construction planned in the 2003 FMP was for 26.6 km of primary road (Road 770) to be built in the western portion of the Forest. Construction was completed in the 2006/07 fiscal year.

Beginning in the 2005/06 fiscal year, funding has been available to SFL-holders for road maintenance and construction through the Ministry's Road Construction and Maintenance Agreement program. For the three fiscal years (05/07 – 07/08) during this audit period in which the program has been in existence, the White River Forest received approximately $3.4 million in funding. Most of the funding over this period (approximately $2.2 million, or 65%) was used to construct Road 770, and the remainder was used for maintenance and reconstruction of crossings. During the site visit we drove on the entire length of Road 770, verifying its quality as invoiced, and inspected five of the fourteen stream crossings which are documented in the Company's and Ministry's records as having been redeveloped using the funding.

The last IFA drew attention to several access-related issues: road maintenance, water crossings, and cross-drainage. These aspects of access are discussed sequence below:

Road Maintenance
Over the course of the site inspections, the audit team travelled on approximately 300 km of forest access roads, providing ample opportunity to inspect the nature and results of road maintenance on the Forest. The previous IFA noted issues related to inadequate road crowning, false ditching, poor sloping and damage to culverts. In this audit we found no evidence of these problems sufficient to suggest that there were systemic issues related to road maintenance on the forest. In fact, we found the roads to be in good condition, which is particularly notable given that relatively little maintenance has been carried out on the roads recently.

Water Crossings
In this audit we inspected five bridges and eleven culvert installations. The bridges were of good quality, consistent with the findings of the previous audit. For culvert installations, the previous audit commented on the inadequate use of rip-rap and poor

road maintenance leading to issues at the crossings. A recommendation in the previous audit directed the Company to ensure that installation and maintenance of all water crossings followed the practices identified in the Ministry's relevant guide document[17]. In this audit, we found no serious instances of erosion problems at culvert installations comparable to those found in the last audit and attribute this to the Company's training efforts, re-development of many crossings, and successful use of seeding to stabilize slopes. However, we did note again, as was commented on in the previous audit, that there was an absence of small and medium sized rip-rap. Although we found no instances of serious erosion at culverts, in our opinion the lack of appropriate sized rip-rap increases the likelihood of this problem occurring. The Environmental Guidelines for Access Roads and Watercrossings note that the average size of rip-rap used to protect river banks on 2:1 or flatter slopes should be 200m (8 in). The rip-rap used in most of the culverts we inspected was larger than this. We strongly suggest that the Company use rip-rap of appropriate size in its culvert installations.

One of the culverts we inspected did have some serious issues. Water Crossing 76-5 on road 20-01 was much too long for its situation (Figure 18). The length of the culvert could lead to bank scouring on the downstream side and undercutting of the roadbed on the upstream side. In addition there was very little rip-rap used to guard against erosion. It would likely be of questionable utility to remove the culvert and replace it with a properly-sized one. However, the culvert should be removed once operations on Road 20-01 are complete to minimize the possibility of environmental damage from this rather tenuous situation. (Company staff indicated that harvesting in areas accessed by the road is to be complete within a year or two.) Recommendation # 9 directs the Company to remove the culvert.

Recommendation # 9

> The Company is to remove the culvert at water crossing 76-5 immediately after harvesting and silviculture work on areas accessed by road 20-01 has been completed.

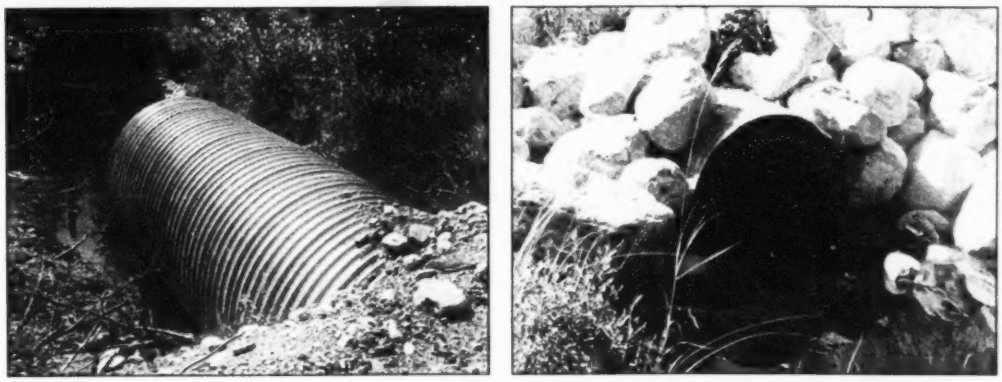


Figure 18. Two culvert installations for which problems were noted. The culvert on the left (culvert 76-5) is much too long for its situation. The installation of the culvert on the left (in block 20 on road 20-03) uses only relatively large rip-rap.

[17] Ontario Ministry of Natural Resources. 1990. Environmental Guidelines for Access Roads and Watercrossings. Queen's Printer for Ontario, Toronto.

We note that the compliance inspection report indicated that the crossing was for short-term use, and so the recommendation is likely just reinforcing the Company's intentions. Nonetheless, we have included it here to indicate support for this strategy and to provide a mechanism for future audits to verify it has been done.

Also of concern to the audit team was the fact that the Company's compliance inspection report did not comment on the fact that the culvert was obviously much too long, (although it did indicate that the lack of rip-rap as being "in compliance with comments"). In addition, when inspecting another crossing (9-11 in on road 402), we observed a 6-8' length of old pipe lying in the stream. The compliance report on the installation of the new pipe does not mention the old, abandoned pipe. We believe these two instances of failing to report compliance concerns regarding culvert installations warrants a recommendation.

Recommendation # 10

The Company is to identify and implement means to ensure thorough compliance inspections of culvert installations.

Cross Drainage

The previous audit found significant problems with a number of cross drainage installations, and several situations in which cross drains should have been installed, but weren't. In this audit we noted only two situations in which significant ponding had resulted from either poorly installed cross drains or the absence of cross-drains. We do not believe these instances are indicative of systemic problems.

3.5 Systems Support

3.5.1 Human Resources

As noted in section 2.0, the White River forest operations were indefinitely suspended in January 2007 and the sawmill has been shut since June 2007. At the time of the audit, there were only two Domtar employees working in White River, sharing responsibilities for representing Domtar in operations taking place on the Forest by non-Domtar staff, and for safeguarding the closed mill facility. The level of staffing is sufficient to support the Company's present level of operations. The Company can meet its obligations on the Forest using contract services available in the vicinity.

We reviewed MNR's training records for its forest management staff. All seem to have received appropriate training.

3.5.2 Documentation and Record Quality Control

Both Domtar and MNR had effective management systems in place within which adequate documentation of the forest management planning process occurred. However, a few minor documentation and quality control issues were observed.

For example, auditors experienced difficulty in locating advertisements for various stages of the public consultation process. However, inventories of information & map products available for each planning stage were effectively archived on CD/DVD (Section 3.3.2).

There were also issues with the quality of MNR Required Alterations, incorrect listing of MNR reviewers on the Forest Management Plan Contributors Page and improper filing of the Title, Certification and Approval Page for MNR's copy of the 2008 FMP. Also, the cover letter for FLORA is incorrectly dated as October 4, 2007 (Section 3.3.6).

MNR and Domtar AWS revision summaries contained errors, and documentation for one AWS revision was missing from Domtar's AWS binder (Section 3.3.9). Multiple copies of Domtar's master list of FMP Amendments also caused confusion (Section 3.3.8).

In spite of these minor documentation and quality control issues, both Domtar and MNR had effective management systems in place within which adequate documentation of the forest management planning process occurred. Although none of these occurrences were indicative of systemic problems or warranted individual recommendations, MNR and Domtar should nevertheless take steps to prevent them from occurring in the future.

3.6 MONITORING

3.6.1 District Compliance Planning and Associated Monitoring

Compliance Planning

During the term of the audit, the delivery of the MNR's forest compliance program was formalized through MNR District Annual Compliance Operations Plans (ACOP). Wawa District ACOPs written during the audit term were based on the Wawa District Five-Year Compliance Strategy (2000).

Wawa District ACOPs for 2003/04, 2004/05 & 2005/06 included full Compliance Activity Reviews for the previous year while the 2006/07 ACOP did not. Compliance reviews included a tabular summary of planned and actual achievement levels and a discussion of Major Accomplishments, Issues Encountered, Rationale for Variance and the Focus for Compliance Efforts in the current year. However, the 2006/07 ACOP only included the Focus for Compliance Efforts for the current year. Annual Implementation Strategies included District priorities and objectives for all MNR program areas. Compliance Activity Schedules were provided for each of the Manitouwadge, Wawa/White River and Magpie/Nagagami Area Teams.

In the Forest Management program, planned inspection levels were constant in each month and year; planned monthly inspection levels for the Wawa/White River Area were:

- two inspections for harvest operations;
- two inspections for access operations;
- one inspection for renewal operations;
- one inspection for maintenance operations; and
- a minimum of one inspection per year for each of 58 road access control signs.

In the 2006/07 ACOP, one inspection/month was also planned for the Road 400 system to ensure compliance with access restrictions under the Road 400 Enhanced Compliance Plan.

Although all four ACOPs provided targets and planned numbers of inspections for the Wawa/White River Area, these were not broken down for each of the five Forests in the District. The prior year's compliance activities were summarized for the Wawa/White River Area, further complicating the process of comparing planned and actual inspection levels at the Forest/SFL level. In this sense, MNR ACOPs were of limited usefulness in assessing the effectiveness of the monitoring program for the White River Forest.

Furthermore, the documents contain very few forest or company-specific comments that would allow the reader to interpret the data in relation to the White River Forest. This could actually be misleading if the infractions of one company are incorrectly perceived to be those of another. Thus it is difficult to relate numbers to the text or to gain an overall impression of company compliance on the White River Forest. Because of this, it is also difficult to compare the Compliance Activity Review with Tables AR-12 & AR-13 prepared for the White River Forest.

It is not even possible to reliably compare data between years since Area boundaries have changed over time and the Forests/SFLs contained within the Areas have also changed. For example in 2003/04 the Wawa Area included the Wawa, White River, Nagagami and Magpie Forests. However, in 2004/05 the Magpie/Nagagami Area was split off from the Wawa Area to leave only the Wawa and White River Forests within the Wawa/White River Area. Therefore, it would be invalid to compare either the compliance summary or planned inspection levels in the 2004/05 ACOP with earlier versions.

Even more importantly, no MNR District ACOP or any type of annual compliance plan was produced for 2007/08. Although the Wawa/White River Area Team completed its sections for the compliance plan, these were never compiled with the contributions of other area teams into an official Wawa District ACOP for 2007/08. As of September 2008, there was no Wawa District 2008/09 ACOP or compliance plan.

Although ACOPs, in name, are no longer required, the Forest Compliance Handbook (2008) still requires the preparation of MNR District compliance plans which are to be revised annually (Reference FOR 07 02 03). Even so, no Wawa District compliance plan has yet been written for 2008/09.

In summary, Wawa District ACOPs written during the term of the audit were of limited utility since they provided information for the entire Wawa/White River Area instead of the White River Forest. Furthermore, no MNR Wawa District annual compliance plan was produced for 2007/08 and none is currently in production for 2008/09. Accordingly, MNR District should resume its production of annual compliance plans and structure them to provide information summaries and forecasts at the forest level.

Recommendation # 11

Wawa District MNR is to resume its production of annual compliance plans in accordance with the requirements of the Forest Compliance Handbook (2008) and structure them to provide information summaries and forecasts at the Forest/SFL level.

Table 8 summarizes the frequency of FOIP inspections and non-compliant incident reports by MNR and Domtar. MNR performed 62 inspections on the White River Forest during the term of the audit. Only one of these resulted in a non-compliant report.

In order to determine if the actual level of monitoring was in accord with the planned number of inspections provided in the ACOPs, it is necessary to make the assumption that the number of inspections would be evenly split between the two forests within the Wawa/White River Area. Under this scenario, on the White River Forest one would expect there to be 12 inspections per year for both access and harvest operations and 6 inspections per year for both renewal and maintenance operations.

Table 8. Frequency of Inspections and Non-Compliant Reports by SFL and MNR.

Year	Inspections by SFL		Inspections by MNR	
	Total	Non Compliant	Total	Non Compliant
2003-2004	45	0	12	0
2004-2005	44	1	21	0
2005-2006	52	1	10	1
2006-2007	76	1	15	0
2007-2008	4	0	4	0
All 2003/08	**221**	**3**	**62**	**1**

Excluding 2007/08 (information not available at the time of the audit), MNR performed an average of 4 inspections per year for access operations, 9 inspections per year for harvest operations, 2 inspection per year for renewal operations and 0 inspections for maintenance operations. Overall, 36 inspections were planned annually while only 14.5 inspections were performed each year on average.

Although the discrepancy between ACOP targets and actual inspection levels may suggest some level of under-achievement, the sufficiency of this monitoring level can only be truly assessed in relation to the detection of non-compliances. Of the 221 inspections that Domtar performed during the five-year term, three harvest not-in-compliances (NIC) were identified while of the 62 inspections performed by the MNR, only one harvest NIC was identified. Thus, the level of MNR monitoring appears to have been sufficient since the detection rates and reported classes of NIC were consistent with that reported by the company and observed in the field by auditors. However, we note that Section 3.4.6 identified two cases in which compliance reports of water crossings seem to have missed non-compliances and so this conclusion is somewhat tentative.

The single harvest NIC involved a wood measurement and movement issue involving the hauling of wood under an expired authorization. Of six harvest-related FOIP reports that were In-Compliance-With-Comments (ICWC), minor utilization issues were noted in two, minor instances of rutting were noted in two, marginal snag retention was noted in one and wood measurement and movement observations were recorded in two. This is consistent with auditor observations in the field, demonstrating that MNR inspections were frequent enough to identify problems.

There was also one access-related FOIP report that was ICWC noting that smaller rip-rap needed to be added to two culvert installations. This observation was also made by auditors in the field, again demonstrating that MNR inspections were frequent enough to identify this type of problem. There were however, no MNR FOIP reports identifying problems with culvert length or depth of installation even though occurrences were reported ICWC by the Company and also noted by auditors during the field audit.

Finally, the MNR compliance technician maintains a binder with an inventory of access control signs and ledgers recording inspection dates and monitoring details for each sign within the Wawa/White River Area. These inspections are not generally documented in FOIP so they do not show up in Tables AR-13, but they are reported in the Compliance Activity Reviews for the previous year contained within the 2003-2006 ACOPs. This binder appeared to be up-do-date with evidence that most signs were visited at least once a year. For those signs involving seasonal restrictions on moose hunting, there is much work involved with visiting each sign and manually changing the posted dates.

In summary, MNR has an effective compliance monitoring system in place which is supported by certified and highly skilled compliance inspectors. Overall, the level of MNR compliance monitoring on the White River Forest was substantially in accordance with the approved FMP and AWS and was appropriate to the scale of operations.

3.6.2 SFL-Holder Compliance Planning and Associated Monitoring

Compliance Planning

The Company's White River Compliance Plan for 2003-2008 was prepared in accordance with the Guideline for Forest Industry Compliance Planning (2001). In addition to meeting the basic requirements of this Guideline, the plan also includes provisions for third-party participation in the development of annual compliance plans and the identification of third-party representatives who will conduct inspections.

In contrast, Company Annual Compliance Plans did not fully meet the requirements of the same Guideline. Generally, it appears that little formal consideration was given to the annual re-assessment of compliance priorities while insufficient detail was provided in the Monitoring-Inspection-Reporting Schedule.

The presentation of Annual Monitoring Priorities in the 2004/05 Annual Compliance Plan was simplistic and did not seem to be based on any assessment of the sensitivity of operating sites, the complexity of operations, or the compliance history by the SFL-holder, as required by the Guideline. The Monitoring-Inspection-Reporting Schedule also contained deficiencies with respect to the Guideline, which clearly requires that the specific type of forest operation, its exact location, who is doing the work, approximately when the work is planned for, the specific resource values present and the planned inspections and report schedule for each operation type be *"identified and described"*.

More specifically, the Schedule identifies who will be performing harvest operations and references an appendix in the AWS which lists the blocks to be harvested, however, this does not meet the requirement to identify approximately when each block will be harvested or identify the specific resource values present. Nor does the schedule properly identify or describe access, renewal, maintenance or protection operations.

In some respects, the 2005/06 Annual Compliance Plan was greatly improved. Although the presentation of the Annual Monitoring Priorities remained simplistic, tabular compliance schedules for regular harvest, salvage harvest, silviculture and water crossings were added to the Monitoring-Inspection-Reporting Schedule. These schedules contained most of the information required by the Guideline, but were still lacking key considerations.

For example, simply referencing April 1, 2005 to March 31, 2006 as the start up and completion dates for every block clearly does not meet the intent of the guideline to identify "approximately when the activity is planned for". This approach actually resulted in "cut-and-paste" errors with the tabular compliance schedules for salvage harvest, silviculture and water crossing incorrectly referencing the wrong fiscal year (e.g., April 1, *2004* to March 31, *2005)*. Also, referencing the AOC planning section of the 2003 FMP does not meet the requirement to describe the specific resource values present at each location.

The 2006/07 Annual Compliance Plan was written in accordance with the Guideline for Forest Industry Compliance Planning (2005). Although Annual Compliance Schedule requirements did not materially change from the 2001 Guideline to the 2005 Guideline, the tabular compliance schedules appear to have been dropped. In this way, the Monitoring-Inspection-Reporting Schedule for this plan suffers from the same weaknesses identified for the 2004/05 Annual Compliance Plan.

The 2007/08 Annual Compliance Plan was essentially the same as the 2006/07 version, with the notable exception that tabular compliance schedules were added again, but only for regular harvest operations and not for silviculture and water crossings.

Whether these plans were appropriate for the evaluation of program compliance and effectiveness can only be assessed in relation to compliance data from previous years. In this respect, Domtar has an excellent compliance record and the risk of major non-compliances is low. In this sense, the brevity of the Annual Monitoring Priorities and that they do not seem to be based on any assessment of the sensitivity of operating sites or the complexity of operations may indeed be warranted, although this should be stated.

In summary, Domtar's Annual Compliance Plans substantially met *Guideline for Forest Industry Compliance Planning* (2001 & 2005) requirements except for the insufficiency of information regarding the timing of operations and discussion of the specific resource values present for each operating area. These requirements have since been restated in the Forest Compliance Handbook (2008) which supersedes the older guidelines. Accordingly, future compliance plans (Annual Compliance Schedules of Action) should be written in accordance with Directive and Procedure FOR 07 02 04 in the Forest Compliance Handbook (2008).

Recommendation # 12

The Company is to ensure that its future compliance plans comply with the requirements for Annual Compliance Schedules of Action as outlined in Directive and Procedure FOR 07 02 04 in the Forest Compliance Handbook (2008).

Compliance Monitoring

Table 8 summarizes the frequency of FOIP inspections and non-compliant incidents reported by MNR and Domtar (see Section 3.6.1). Domtar performed 221 inspections on the White River Forest during the term of the audit and reported only three NIC involving two minor trespasses and poplar utilization. As indicated above, only one NIC was identified in the 62 MNR inspections, and it was also for a harvest-related incident. Thus, the detection rates and reported classes of NIC were consistent between the Company and the MNR, and with the field observations of the auditors.

Of 17 harvest-related FOIP reports that were ICWC, 12 were for suspended operations requiring follow-up to haul roadside material, three were for minor utilization issues, and two were to identify bypass. In comparison to MNR inspections, there were no ICWC reports for rutting or snag retention. Otherwise, these minor problems were consistent with auditor observations in the field, demonstrating that Company inspections were frequent enough to identify problems that could have turned into non-compliances if they were not addressed. In the case of the suspended operations, FOIP issue follow-up indicated that roadside wood was eventually hauled.

There were also several access-related FOIP reports that were ICWC. These involved two instances of denting culverts during installation, two cases of inadequate rip-rap that were corrected, one perched culvert, one culvert that was too small, and one culvert that required monitoring for potential erosion. However, as described earlier (Section 3.4.7), there were, no Company FOIP reports identifying problems with culvert length, which was observed by the auditors in the field.

In spite of minor differences in interpretation, there was a considerable degree of consistency between MNR and Domtar in terms of reported NIC and ICWC. A good working relationship was observed to exist between MNR and SFL staff due to frequent communication, while MNR inspectors were confident in industry's willingness to report non-compliances and in their own ability to detect them.

In summary, Domtar has an effective compliance monitoring system in place which is supported by certified and skilled compliance inspectors. Overall, the level of SFL compliance monitoring on the White River Forest was consistent with the approved FMP and AWS and was appropriate to the scale of operations. Our favourable assessment of the Company's compliance monitoring was somewhat tempered by the two instances of apparent non-compliance overlooked by inspection reports described in Section 3.4.7.

Domtar also has an effective compliance prevention and education program in place which is delivered through their ISO14001 EMS. This is available to all staff and contractors through the internet. Management System Procedures (MSP) exist for Training; Monitoring and Measurement; Non-Conformity Corrective and Preventative Action; and Internal Audit. MSPs are supported by Standard Operating Procedures (SOP) for guidance, supervision and the performance of forestry operations. A training needs matrix specifies what training each staff person should have and tracks the completion of required training for each employee.

Finally, there has been no delegation of authority to overlapping licensees with respect to roles and responsibilities within the SFL compliance plan. However, the MNR has

recently licensed 75,000 m^3 per year to First Nations under separate Forest Resource Licences. Qualified compliance inspectors are employed by these First Nations ventures, and they do perform compliance inspections on their operations. Although Domtar has requested the opportunity to review the associated FOIP reports prior to their entry into FOIP, Domtar stated that such action is not an assumption of responsibility since no Overlapping Licensee Agreement is actually in place.

3.6.3 Silviculture Standards and Assessment Program

Domtar has a very good system for silvicultural effectiveness monitoring. Field surveys, both formal and informal, are conducted at various stages in the management of a stand. These include second year regeneration assessments, which are done on all treated areas and are used to determine and schedule the need for further treatments, including tending. Silvicultural information is well-integrated with Domtar's GIS system which facilitates annual scheduling of activities as well as helping to ensure accurate and timely mapping and reporting.

MNR did not conduct silvicultural effectiveness monitoring on the WRF during the audit period. District staff explained that the reason for this was insufficient availability of staff and supporting resources, including technical staff, to complete the work. District staff understand the requirement for, and have a considerable interest in assessing the effectiveness of silvicultural strategies and silvicultural prescriptions for the WRF.

MNR did not conduct any field validation of the silvicultural effectiveness monitoring performed by Domtar on the WRF during the audit period, even though Regional funding was supplied to the District to do so (specifically, funding in regard to meeting Declaration Order condition 29). District staff explained that because Wawa District has the responsibility for seven forest management units, there were simply insufficient staff and supporting resources, including technical staff, available to complete the work. District staff understand the requirement for, and have a considerable interest in, conducting quality assurance surveys on silvicultural effectiveness monitoring completed by the Company, and in assessing the effectiveness of silvicultural strategies and silvicultural prescriptions for the WRF. Subsequent to our field assessment, Wawa District staff informed the audit team that they have initiated a program of SEM quality assurance for the White River Forest, and that some initial aerial surveys were conducted on December 3rd and 4th, 2008.

Recommendation # 13

> Wawa District MNR is to ensure that the staff and resources are made available to plan and implement an appropriate level of field validation and quality assurance surveys for the Company's program of silvicultural effectiveness monitoring for the White River Forest.

3.6.4 Monitoring Indicators of Forest Sustainability

The author of the most recent RPFO, which covered the 1998-2003 FMP period, made his best effort to assess the mandatory indicators of sustainability that are identified in the 2004 FMPM. The results were of limited value, since the majority of indicators could either not be assessed, could be assessed but not compared across different time

periods because of changes in calculation methodology or forest unit classification, or were only available at one point in time and thus could not indicate a trend. Section 3.7.1 contains a detailed description of the assessment and the issues that arose. The Year Ten AR that would contain the analogous assessment for the 2003 FMP period was not available at the time of report production (it was due Nov 15, 2008).

The audit team considers it unlikely that the Year Ten AR will be able to provide a sufficiently comprehensive assessment of sustainability due to the recurrence of many of the same factors identified above. A recommendation has been directed to Corporate MNR in this respect.

The structure of the 2008 FMP is based on objectives, indicators and targets, and the Company was required to assess whether the plan achieved the objectives and target levels of the indicators. The assessment was reported as Table FMP-13. Most of the objectives are readily quantifiable and the Company will be able to assess the indicator values using available information. There are a couple of exceptions – for example, the objective of minimizing conflicts with non-timber resource users and protecting non-timber values is to be assessed by looking at the record of operational compliance, which may not be the best way of assessing the level of conflict between users. However, by and large, the targets indicated in the 2008 FMP are assessable and related to the underlying plan objective.

3.6.5 Annual Reports

As described earlier, the IFAPP provides auditors with some discretion in identifying individual audit procedures which can be eliminated from review, depending on the extent to which they impact sustainability of the forest. We elected not to audit the performance of the MNR in reviewing the submitted annual reports, so that is not discussed here.

The annual reports for 2003/04 to 2006/07 were submitted by the Company as required. The 2004 FMPM requires that the Annual Report for the last year of an FMP prepared under the 1996 FMPM provide additional information beyond that required in a standard Annual Report. Therefore, the 2007/08 Annual Report is expected to meet the Year 10 AR requirements. However, the 2007/08 Annual Report could not be reviewed as it was not available during the audit period (it is not required until Nov 15, 2008 – after the period included in this audit.)

All ARs were submitted, electronically via the Forest Information (FI) portal. MNR also provides information via the FI portal on harvest volumes, revenue and expenditures (Table AR-11 of the Annual Reports), compliance reporting (AR-12 and AR-13), and Term and Condition #34 activities.

In general we found the quality of the ARs to be very good. Tables were filled out according to the direction in the FMPM, and appear to be accurate. Textual descriptions explain the tabular results and provide reasonable insight into the dynamics and results of field operations. Textual descriptions also bring discussions of the overall issues related to the slow-down and eventual cessation of mill operation into the context of annual activities. The information provided in the ARs is consistent with our assessment of quantitative information related to harvesting (Section 3.4.3), renewal (3.4.4 and 3.4.6), tending and protection (3.4.5) access (3.4.6), and compliance (Section 3.6.2).

Section 2.3.1 of the FMPM notes that each annual report is to contain a synopsis section which includes, among other discussions, observations related to implications of the recent level of management activities on "the achievement and objectives of the forest management plan…". The ARs contained such descriptions, but the objectives discussed are only those related to harvesting and silviculture. No discussions related to the social or ecological objectives were included. We note that the year-seven and year-ten ARs are directed by the FMPM to include specific analyses of achievements related to ecological and social objectives. However, given the direction of the FMPM related to the annual synopses and the logic of summary assessments of a broader array of achievements on an annual basis, we suggest that the Company include assessments of ecological and social objectives in the synopsis portion of all the annual reports.

3.7 Achievement of Management Objectives and Forest Sustainability

3.7.1 Report of Past Forest Operations (RPFO) or Year Ten Annual Report (AR)

SFL-holders that operated under forest management plans that terminated on March 31, 2003, were required to prepare a Report of Past Forest Operations (RPFO), following the requirements of the 1996 FMPM. The 1996 FMPM required the Company to submit a draft of the RPFO within two years of the conclusion of the last plan, and it was the final version reviewed by the audit team, was dated December 5, 2006. The purpose of the RPFO was to review the operations during 1998-2003 (the period of the 1998 FMP), evaluate the quality of the assumptions and data used in the 1998 plan, and assess the sustainability of management.

The structure and content of the RPFO followed the FMPM direction, and the description in the report was informative and contained a useful level of specificity. The depletion data from the RPFO were used in the Trend Analysis Report, found in Appendix A.

The IFAPP requires the audit team to review the information related to sustainability provided in the RPFO. In addition to reviewing the RPFO's assessment of sustainability (see section 3.7.3), the auditors considered the level of silvicultural success that was reported. The RPFO stated that roughly 10,700 ha of the planned 14,000 ha were assessed for free-to-grow status, and all but 154 ha were reported as being free-to-grow (FTG). This translates to a renewal success rate of 98.5%. The RPFO did not discuss what proportion of the renewed area regenerated to the anticipated forest type.

The RPFO reported that during the 1998-2003 period, the Company spent $6.9 million while bringing in $4.2 million from the renewal trust component of Crown dues payments, in effect drawing down the surplus in the Forest Renewal Trust (FRT). The anticipated FRT revenue was 48% of the planned level; the shortfall was due to the actual harvest being 75% of planned and reductions in renewal rates as the Company drew down the balance in the account, which exceeded the minimum required balance. In contrast, actual silvicultural expenditures totaled 81% of the planned amounts, with the shortfall attributable to the underachievement of the harvest and a number of sites turning out not to need the treatments that were included in the budget.

The balance of the FRT was drawn down by $2.7 million during the period; the 2003 IFA report confirmed that the minimum balance was in place throughout the period, and so it

is reasonable that the Company would not want to contribute more capital than necessary into the FRT.

The RPFO contained a brief overview of the assumptions used in developing the 1998 FMP, and concluded they were generally reasonable and are continually being refined and improved. The assessment indicated that there was little local data backing up the assumptions regarding the natural sucessional pathways, and the estimates were little more than educated guesses on the part of local professional foresters, in contrast, operational data are used to inform post-harvest succession. Regional MNR also assisted in improving the data used for planning, for the 2003 FMP, the RPFO notes that the region updated fire cycle and post fire succession parameters and improved the modeling of post-harvest stand development.

The high quality of the discussion in the RPFO included frequent mention of findings from the 2003 IFA, where relevant, and a very brief summary of the IFA. There were no exceptions to the silvicultural guides or other management guides, other than some clearcut areas exceeding the 260 ha threshold identified in the 1994 Class Environmental Assessment Report. Allowing some large clearcut areas is consistent with current MNR direction to create size class frequency of disturbances that is estimated to emulate natural conditions. Access exceptions to the District Land Use Guidelines were monitored by the Company to ensure that they were implemented as planned.

3.7.2 Assessment of Objective Achievement

The IFAPP requires the audit team to assess the level of achievement of management plan objectives. Table 9 below provides the audit team's assessment of the extent to which the 2003 FMP objectives were met.

Where there is no Year Ten AR available, IFAPP directs the audit team to review the assessment of objective achievement in the RPFO. In the case of the WRF, the most recent RPFO covers the achievement of objectives in the 1998 FMP, which were also reviewed in the 2003 IFA. In fact, much of the text in this section of the RPFO was taken directly from the 2003 IFA report. To summarize, during the 1998 FMP period, many of the short-term objectives were achieved and progress was made towards those objectives which will require multiple plan periods to achieve. Operational targets related to the softwood harvest were largely achieved, since the actual harvest was 94% of the planned level. Hardwood harvest levels were well below planned, however, due to lack of demand. The interested reader is encouraged to obtain and read the 2003 IFA for a more detailed description of 1998 FMP objective achievement.

In the case of the 2003 FMP objectives, those that had targets related to the level of operations were not achieved due to the low proportion of the planned harvest that was actually achieved. This also affected the ability of the Company to move the distribution of harvest disturbance patch sizes closer to the natural forest template. However, the silvicultural program was largely undertaken at a level that was consistent with the harvesting. Thus, the areas that were harvested were being renewed.

Many of the forest cover objectives are achieved during the course of planning, and the 2003 FMP direction was followed during the plan term, even if the level of operations was below planned. The development of the 2008 FMP was much less contentious than

was 2003 FMP development, suggesting that more interests were satisfied with the direction provided in the plan. A number of the socio-economic objectives that related to the provision of opportunities and the avoidance of negative impacts on other users appear to have been achieved. There were no findings of non-compliance related to these concerns, and we did not hear complaints from the LCC, members of the public, or other stakeholders that suggested that other users were being negatively impacted. The most contentious issues related to access and most members of the public, as well as other forest users such as Aboriginal people, wanted as much access available to them as possible.

Table 9. Review of the achievement of objectives of the 2003 Forest Management Plan for the White River Forest.

Objective/Targets	Achievements	Explanation
Forest Diversity Objectives		
To maintain forest diversity within the bounds of natural variation. Maintain a natural distribution of forest unit areas. (Detail in section 2.3.3.1.1 of FMP) Emulate a natural disturbance pattern (Detail in sections 2.3.3.1.1 and 2.3.9.2.1 of FMP) Maintain an old and very old age class component (Detail in section 2.3.3.1.1 of FMP).	Table FMP-7 of the 2008 FMP was compared with the FU area objectives identified in the 2003 FMP. We compared FU composition of the present (2008) forest and the projected (2028) forest to the 2003 objectives. The area of all FUs in 2028 falls within the target range. In 2008, the area of the LC and MW1 forest units were marginally outside the target range. Table AR-15 intended to provide a summary of frequency distribution of forest disturbances by size class is not completed in the most recent available (2006/07) annual report. Table AR-3 provides an annual report of planned clearcuts noting the planned size of the cuts. Planned cuts were developed to adhere to the objective of emulating natural disturbance patterns, but the table shows that all clearcuts have not been completed, and some have not been, and some have not even been started. Old and very old age class targets were compared to SFMM output for the first two terms of the projected future forest. Age class targets were either met (or exceeded in all cases).	Forest Unit objectives have been achieved. Due to the significant undercut on the forest during the plan period, the objective related to emulation of natural disturbance patterns will not be achieved.
To protect and/or enhance landscape processes which affect the structure, composition and function of forest ecosystems	This objective of the 2003 FMP is tied to attainment of the targets above; no independent targets for this objective are provided. The plan describes the use of various guides,	The absence of specific objectives and targets makes assessment difficult and rather unproductive.

Objective/Targets	Achievements	Explanation
through minimizing adverse effects on terrestrial and aquatic ecosystems.	guidelines and FMPM direction to take landscape pattern and processes into account in managing the forest. All the direction described in the description of the objective was used.	
Social and Economic Objectives		
To ensure that the White River Forest is managed in an environmentally sound manner to provide a sustainable, economical and predictable supply of quality wood fibre to user mills sourcing fibre from the Forest. Key targets include: ▪ Annual harvest of 380,000 m^3 spruce and pine, 200,000 m^3 OSB poplar, 26,000 m^3 veneer poplar, and 40,000 m^3 birch.	While this audit has concluded that the Forest was managed in an environmentally sound manner (Section 3.7.5), the Company was not able to meet the wood production targets throughout the audit period. A seven-month shutdown in 2003 and the indefinite cessation of woodlands operations in January 2007 and mill operations in June 2007 meant that wood production was well below planned levels during those years. In 2004/05, the conifer harvest reached 381,000 m^3, and it was 351,000 m^3 the following year, but averaged 64% of planned over the five-year term. Hardwood production averaged 20% of planned during the term.	The forest industry has struggled in recent years but entered a very steep decline in 2007 as the U.S. housing market began to decline. This, plus an unfavourable exchange rate, the on-going softwood lumber dispute, and rising energy costs have created an extremely difficult operating environment for the sector.
To achieve participation by local Native communities in the benefits provided through forest management planning and activities.	There was good progress in achieving this objective, as Pic River Development Corp (PRDC) was able to begin operating on the Forest again in 2007 and increased activity at the end of the 2007/08 fiscal year. More recently (and outside of the audit term), Pic Mobert has begun a joint venture harvest with PRDC.	The MNR broke a long-standing deadlock by issuing a Forest Resource Licence directly to PRDC, thus eliminating the requirement for PRDC to reach an agreement with the United Steelworkers of America union before PRDC could operate on the Forest.
To maintain and protect Native cultural heritage values.	This objective was met – there were no non-compliances or complaints that Native cultural heritage values had been affected by forest operations. As part of the preparation for the	

Objective/Targets	Achievements	Explanation
	2008 FMP, MNR hired a Pic River person to collect values information from Pic River and Pic Mobert, and an extensive amount of information was collected and incorporated into planning.	
To maintain and protect archeological sites, cultural landscape and traditional use sites (non-Native).	There were no non-compliances or complaints that (non-Native) cultural heritage values had been affected by forest operations. The objective is considered to have been met.	
To encourage opportunities for local employment in a range of forest management related activities (harvest, renewal, maintenance, log hauling, road construction, processing at local mills, etc.) as well as in the service and supply sectors which support these activities.	While the Company as a matter of practicality had a workforce that was largely drawn from White River, and surrounding communities, the indefinite shutdown of the mill and Domtar's woodlands operations has meant that there has recently been very little employment generated. The exception is the First Nations harvest operations.	
To ensure that forest management activities are planned and implemented in a manner in which opportunities for commercial tourism activities can be sustained.	The Company, as well as MNR (through CLUAH), improved the compatibility of timber harvest and tourism. However, this has been a very contentious area. Some of the Requests for Individual Environmental Assessments of the 2003 FMP were related to issues of access to remote tourism lakes, and there was a condition that the use of Road 400, a particularly contentious road, be monitored to ensure tourism lakes were not being accessed. There were two issue resolution requests associated with the 2008 FMP, and both involved access to remote tourism lakes. The issue resolution process resulted in two	MNR's access monitoring did not detect any unauthorized access of remote tourism lakes from Road 400. CLUAH may provide some further direction regarding access in this area of the forest. Domtar followed the RSA process requirements during the development of the 2008 FMP but there was no prolonged interest on the part of the RBT's to negotiate an Resource Stewardship Agreement (RSA). Company staff attributed that to the existence of Crown Land Use Policy Atlas (CLUPA), which prescribes what Domtar can and cannot do around remote tourism lakes, and there is no need, from the perspective of the RBT's, for an RSA.

Objective/Targets	Achievements	Explanation
	proposed new roads being reclassed from primary to branch roads, and one proposed road extension being deferred pending the outcome of CLUAH (See section 3.2.3).	
To ensure that forest management activities are planned and implemented in a manner in which Crown land recreational opportunities (i.e. hunting, fishing, canoeing, camping etc) can be sustained.	There were no compliance issues that affected Crown land recreational opportunities. While there was a considerable controversy over access during the development of the 2003 FMP, reflected in many of the requests for individual environmental assessment, the conditions imposed were very specific to individual roads. The CLUAH initiative will provide land use direction including an updated balancing of the various uses of the Forest.	
To ensure that forest management activities are planned and implemented in a manner in which opportunities for other commercial Crown land users (i.e. trapping, mineral exploration, bait fishing, etc) can be sustained.	Returns from trappers indicates that trapping success has been fairly consistent, suggesting that populations of key fur-bearers are being sustained. Other commercial uses of Crown land have not been negatively impacted by forest operations – if anything, the greater access that is provided through roads built by the forest companies has had a positive impact. The objective is considered to have been met.	
To provide volumes of timber for such uses as fuel wood, building logs, and other local or personal uses.	The annual reports show that a total volume of 2,548 m^3 was harvested for personal fuel use during the first four years of the 2003 FMP term, and 265 m^3 were harvested for personal building materials. Personal fuelwood harvests occurred in each of the four years. The objective is considered to have been met.	
Provision of Forest Cover Objectives		
To maintain in suitable conditions, forest which has the capability to	The targets for marten habitat in the 2003 FMP are the same as those contained in the 2008 FMP. Section 3.3.5 of this report reviews	

Objective/Targets	Achievements	Explanation
produce marten habitat.	marten habitat and the forest and concludes that marten core areas were well planned, and meet the requirements of the MNR's guidance material. The objective has been achieved.	
To protect and maintain heron heronries and nesting sites for bald /golden eagle and osprey.	The objective is basically to employ MNR's various guides for protection of stick nests. The AOCs developed for the 2003 FMP were done using direction from the guides. Throughout the audit period no transgressions or compliance issues related to AOC implementation were found arose, so the objective was achieved.	
To ensure that moose habitat is sustained or enhanced.	Moose habitat was to be sustained through implementing a combination of the direction in the Natural Disturbance Pattern Emulation Guide and the moose habitat guide. The direction in NDPEG was followed, although, as noted above the objective for size-class distribution of clearcuts was not achieved. Nonetheless, our on-the-ground observations indicate no shortage of habitat for moose. In addition, the MNR biologist indicated a high level of satisfaction with the state of moose habitat on the forest.	
To ensure the protection and maintenance of water quality and habitat for fisheries resources within watersheds where forest management activities occur.	This objective involves primarily implementation of the direction in the fish habitat guide and the Environmental Guidelines for Access Roads and Watercrossings. Our inspections found excellent adherence to the direction in the fish habitat guide, as incorporated into the FMP through several AOCs. As described in Section 3.4.6 adherence to the access roads and water crossing direction was generally good, although there we did note that better use should be made of small rip-rap, and one very poor culvert installation was noted (Recommendation # 9)	

Objective/Targets	Achievements	Explanation
Silviculture Objective		
To optimize forest renewal and tending in an environmentally sound manner.		
An assessment of Silvicultural expenditures - these should not exceed stumpage revenues to the Forest Renewal Trust Fund for the White River Forest in any ten-year term;	This assessment was completed for the preparation of the 2008 FMP; for the 2003 FMP term, revenues and expenditures were balanced and the minimum balance was maintained for the 5-year period.	Target was met.
An evaluation of the benefit to cost ratio for each of the alternatives to determine if the added cost of exceeding stumpage revenues yield a proportionate increase in benefits (i.e. total volume over 100 years);	This evaluation was completed as part of the SFMM analyses during preparation of the 2008 FMP.	Completed.
An assessment of area by silvicultural treatment, and an assessment of the variance on the silvicultural program hectares by treatment, to ensure that the silvicultural program is balanced without periods of excessive amounts of any one silvicultural intensity (no more than	This assessment was completed as part of the SFMM analyses during preparation of the 2008 FMP.	Completed.

Objective/Targets	Achievements	Explanation
60% by area) of any silvicultural treatment in any given term). Specific renewal and tending targets to achieve objectives for the 2003 to 2008 plan term are: Natural regen: 14,785 ha Planting: 7,370 ha Seeding: 2,926 ha Site preparation: 11,137 ha Tending (aerial): 7,057 ha (ground): 784 ha (manual): 0 ha Precomm Thinning 1,000 ha	Total regeneration achieved for the 2003 FMP term was 108% of the forecast, when the total was pro-rated to the reduced harvest area for the period (see Table 13 for details of Domtar's silvicultural achievements in the 2003 FMP term). Tending levels were appropriate for the site conditions of regenerated stands. Pre-commercial thinning was underachieved due to lack of availability of jack pine stands with suitable characteristics and logistics (access).	Sire preparation, natural and artificial regeneration targets were met, cleaning achievements were appropriate for the forest, and pre-commercial thinning targets were underachieved, but the explanation for the latter is reasonable.

3.7.3 RPFO or Year 10 AR Assessment /Determination of Forest Sustainability

The RPFO reviews the events and accomplishments during the1998 FMP period, and assesses the sustainability of forest management. Tables RPFO-13 – 19 are discussed in terms of sustainability, and the RPFO indicates that MNR's review of the draft led to an alteration that compelled to Company to report in the indicators of sustainability identified in the 2004 FMPM.

Our general assessment of the evaluations in the RPFO is that they were greatly hampered but changes in planning and reporting approaches over time, lack of data, and lack of documentation for the reasons behind observed changes. The comparison of socio-economic indicator statistics between 1997 and 2001 reveals some erroneous comparisons, likely due to the inconsistent use of different consensus districts (e.g. the population of Wawa was reported as increasing from 1935 in 1997 to 6,647 in 2001, which far from correct).

Many of the indicators are based on changes in forest unit area. Unfortunately, different forest unit criteria were used in the 1998 and 2003 FMPs. The author of the RPFO tried to use working group area data instead, however because the future forest is expressed in the FMPs in terms of area of forest units, and the translation between working group and forest unit was not reliable, the author was unable to assess whether the actual forest area was tracking the desired levels.

Table RPFO 14 examines the area of forest available for forest management. Here again, what appear to have been different and undocumented standards for determining what area was available precluded a useful analysis. The data show an apparent decline of 46,000 ha from 1993 to 1998, but the RPFO notes that the 1998 and 2003 values are consistent. The RPFO reported that there were no records of landbase alterations during the 1993-1998 period and speculates that changes in accounted standards from the 1986 Timber Management Plan guide and the 1996 FMPM may be responsible.

Various landscape attribute index values forecast in the 1998 FMP are consistent with the regionally acceptable values; the values to be tracked in tables RPFO 15 – 17 were only available for one point in time and were not yet indicative of any trends. Table RPFO 19 shows the impact of moving away from the Timber Management Guidelines for the Provision of Moose Habitat to the implementation of a harvest block size pattern more reflective of natural conditions.

The RPFO provides a realistic assessment of the indicators, in that they reflect the Company's on-going efforts to plan for and follow the principles (of sustainable forest management) set forth in the FMPM. Those indicators that yielded useful insight were consistent with sustainability (e.g. change in frequency distribution of disturbance size classes), however the large majority of the indicators did not yield useful information. The audit team's conclusion is that despite the best efforts of the Company to prepare a useful analysis of sustainability, the information available to assess the required indicators was deficient so that there was insufficient evidence to complete a credible assessment of sustainability.

The audit team is aware that a number of modifications have been implemented that are expected to mitigate some of the issues that were encountered, such as the establishment of regionally standardized forest units. However, we note that changes caused by re-inventorying the forest can be substantial and so it is unlikely that standardized forest units will be sufficient to enable a consistent accounting of the landbase as it changes over time. It was also quite evident that a lack of documentation about how certain statistics were calculated hindered the ability of the RPFO author to compare values across time periods. Improvements to models and changes to planning direction can also be expected to lead to projections that become outdated and irrelevant.

The audit team feels that the time is appropriate to evaluate the experience that has been gained in monitoring and reporting on indicators of sustainability. The release of the criteria and indicators of sustainable forest management by the Committee of Canadian Forest Ministers in 1995[18] was a landmark event in the methodology for evaluating and monitoring sustainability, but judging from the evidence presented in the RPFO, the assessment approaches are ready for appraisal and revision.

As a result, the audit team feels that it would be preferable for MNR to be less prescriptive in how it requires SFL-holders to report on sustainability, which would improve the value of the sustainability assessments, although there would be somewhat less consistency of assessment methodologies across forest management units. The key is to find an appropriate balance point, and we think that the current balance is tilted too far in favour of prescriptiveness.

Recommendation # 14

Corporate MNR is to evaluate and re-consider how it requires licensees to track and report on sustainability.

3.7.4 Comparison and Trend Analysis of Planned vs. Actual Forest Operations Report

The Comparison and Trend Analysis of planned vs. Actual Forest Operations Report (referred to as the Trend Analysis, for brevity) was prepared by the Company. The first version was reviewed by the audit team and comments provided back to the author, who made revisions as he deemed appropriate. The final version of the report is included as Appendix A of the audit report.

The Trend Analysis follows the format and content direction set out in IFAPP. One complication that was encountered is that the Trend Analysis is intended to report on planned versus actual operational results for the period of the plan that is in effect on March 31 of the audit year (i.e. 2008), and for the two preceding plans. However, because the 2008 FMP was completed and approved at the time of the IFA, and the planned levels of different variables provided an update on trends of interest, it was decided that the plan identified as "current" in the Trend Analysis tables would be the

[18] In the document "Defining Sustainable Forest Management: A Canadian Approach to Criteria and Indicators".

2003 FMP and an additional column, headed "Future" would provide relevant information from the 2008 FMP.

In general, the Trend Analysis is well-written and insightful. The IFAPP requires that the audit report contain a summary of key findings in the body of the report; the reader is encouraged to read the Trend Analysis directly (in Appendix A).

The first table shows the managed area by inventory class and working group (i.e. dominant species). There is general uniformity in the figures reported in the 1998, 2003, and 2008 FMPs, with more significant differences in the 1993 FMP. The greater consistency from 1998 onwards reflects the arrival of a new inventory in 1993 (too late to be used for the production of the 1993 TMP) based on 1989 photography. That inventory, updated regularly to reflect operations and other factors, has been used for all subsequent plans.

The table shows a gradual erosion of the managed forest area, which declined by approximately 23,000 ha or 5% since 1998. Part of the reason for the decline is the removal of areas that were set aside to extend White Lake Provincial Park and to create 4 new conservation reserves under Ontario's Living Legacy agreement, which was reached in 1999. The reduction in available forest totaled approximately 18,500 ha[19], and it shows up as the majority of the decrease from 2003 to 2008.

One of the major changes evident in Table 1 is the increase in area categorized as Barren and Scattered /Not Satisfactorily Regenerated & Recent Disturbance from 1998 to 2003. The increase is attributable to the Crocker Lake fire, which burned 14,197 ha of productive managed forest in 1999 (the total fire size was approximately 37,000 ha – it also burned the entire newly-created Kwinkwaga Upland Ground Moraine Conservation Reserve). The audit team reviewed the burn area by helicopter and also in part from the ground (Highway 17 runs right through a large portion of the burn), and can report that it is regenerating very well to a mixture of species.

Analysis of the relative proportions of forest area by species group in Table 1 of the Trend Analysis is complicated by the introduction of two mixedwood forest units in 2003, as part of the introduction of regionally standardized forest units. Figure 19 shows the proportions of key species groups adjusted by removing the mixedwood areas from the 2003 and 2008 figures – the result shows declines of poplar and birch on the order of 5%, a smaller decline in spruce, and an increase of approximately 10% in the relative area of jack pine stands. Note that the analysis is approximate only, since it is predicated on the assumption that the mixedwood area was drawn proportionally from each species group.

[19] Page 135, 2008 FMP.

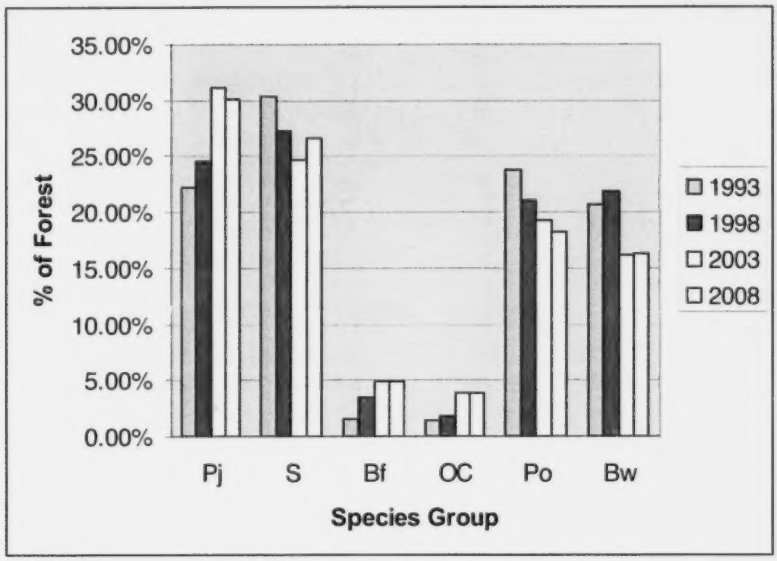


Figure 19. Proportion of managed forest by forest unit by FMP year.

The proportion of planned area that was actually harvested increased from 73% in the 1993 TMP term to 88% in the 1998 FMP term, as the start up of Weyerhaeuser's mill in Limer, near Wawa, led to an increased demand for hardwood. In the 2003 FMP term, only 51% of the planned area was harvested, reflected the severe industry conditions that culminated in the indefinite closures of the Limer mill and the White River sawmill in 2007. Actual volume as a proportion of planned followed a similar pathway, increasing from 65% to 75% from 1993 to 1998, before falling back to 44% in the 2003 FMP term. There is a fuller discussion of the harvest pattern in section 3.4.2 of this audit report.

All of the silvicultural activities fell short of the target levels during the 2003 FMP period, primarily because the area harvested was only 51% of the planned amount (the final figure may be one or two percentage points higher when the area harvested by Pic River in the last year of the plan is available). When silvicultural achievements are pro-rated by the area harvested, the level of natural renewal, seeding, and planting achievement exceed targets and area site prepared and tended was below the target level. It is not uncommon for the levels of these activities to come in below planned, in part because planning for these activities often includes areas that are likely to need treatment but following assessment of the site, may turn out not to need it. These results indicate that the Company is renewing all of the area it harvests. Similarly, Company free-to-grow assessments exceeded the planned level, and 90% of the area assessed was declared FTG. Most of the balance was adequately-stocked but required additional time to meet the height requirements of a free-to-grow stand.

In summary, the author of the Trend Analysis does not indicate any concerns regarding sustainability of management on the White River Forest.

3.7.5 Conclusions regarding Sustainability of the Crown Forest

The audit team believes that the White River Forest has been managed in a sustainable manner during the audit period, notwithstanding the current lack of utility of many of the FMPM indicators of sustainability. Nothing in the preceding sections of this report has pointed to a lack of sustainability. The RPFO and the Trend Analysis both conclude that sustainability is being achieved. The current indefinite shut-downs of the White River sawmill, the Limer OSB mill, and other mills which drew wood from the WRF are indicative of widespread difficult economic conditions in the industry, not of poor management of the White River Forest.

Further supporting our opinion that the WRF has been managed sustainably, we found that the key issues in the 2003 IFA (which showed good overall performance) are in the process of being resolved, and there has been steady progress in many other areas. This is demonstrated most vividly in the lack of requests for an individual environmental assessment of the 2008 FMP, compared to 11 such requests and hundreds of letters of objection, associated with the previous plan. While the Crown Land Use Atlas Harmonization project, which is essentially a land use review process, is not completed at this time (December 2008), it is expected to recommend a number of measures to address many of the differences of opinion regarding access.

Another important recent development has been the start-up of harvest operations on the forest by the Pic River Development Corp and by Pic Mobert First Nation. This represents important progress on an issue that has long undercut relations between the MNR, Domtar, and the two First Nations on the WRF. The effort on the part of the MNR District to make a breakthrough was acknowledged with a best practice, although the persistence of the First Nations should also be recognized.

In addition to the major events described above, there has been steady progress in many other areas. The 2008 FMP was written to reflect a more integrated, landscape-level approach to planning and to biodiversity conservation, and we found that the 2008 FMP is improved in this respect compared to previous plans. Another positive feature was that the planning team added seven songbird species to the species managed using fine filter approaches and tracked the area of preferred habitat over time. Six of these seven species showed declining population trends according to Ontario Breeding Bird Atlas or the Breeding Bird Survey; the seventh (bay breasted warbler) was added because it has been part of challenges to other management plans in Ontario. Overall, the audit team felt that the 2008 FMP was very well considered, and awarded a best practice to the planning team. Harvesting and renewal are in balance, and renewal efforts usually lead to the formation of a new forest within the anticipated time period. While only 33% of the area that was treated regenerated to the projected forest type, further analysis is required to understand the gravity of this situation and identify ways to improve. We also observed that the compliance record improved to an excellent level, compared to the previous audit term, that operations in the field were conducted to a high standard, that the silviculture that can be expected to be required on the forest amounts to less than half a year's worth of activity and it can be fully funded by the monies in the Forest Renewal Trust, which at the levels required by the SFL.

Finally, we observed that there is a very good rapport between the Company and MNR – while this is not always correlated with the quality of management, we have observed that where rapport is poor there are often major problems.

3.8 CONTRACTUAL OBLIGATIONS

This section contains the write up of the audit team's review of contractual obligations specified in the SFL. Because the SFL document contains many requirements, including a number that are closely linked with performance, some of the licence requirements have been discussed in previous sections (e.g. salvage and wasteful practice). The discussions below cover key components of the SFL and key issues that arose in the audit related to SFL obligations.

3.8.1 Crown Dues Payments

Domtar and PRDC are both up to date in their payments of Crown dues on the WRF.

3.8.2 Previous Independent Forest Audit

The previous IFA was undertaken in 2003. The actions taken in response to the recommendations made in that audit are reviewed in Table 10, and their effectiveness is assessed. All of the recommendations issued in the 2003 IFA have been effectively addressed, with the exception of slash management, which has improved but remained limited, based on the observations of the auditors in the field.

Table 10. Summary of Actions taken to address Recommendations from 2003 IFA and Outcomes.

Recommendation	Planned Actions	Current Status
Principle: Commitment		
No recommendations.		
Principle: Public Participation		
1. The MNR District Manager and MNR senior staff should establish a District policy for their attendance at WRACC meetings.	MNR will ensure a representative at all WRACC meetings and will develop a district policy for staff attendance.	There was regular attendance by MNR personnel from 2003 to 2007 (latest info) and a district policy was developed. The recommendation has been addressed.
2. The Ministry should coordinate training and team building efforts to improve WRACC members' understanding of the FMP process, and to build positive relationships both between Committee members, and between the MNR and the Committee.	In addition to having a staff person attend regularly, a standing item will be put on the WRACC agenda to provide opportunities to discuss the forest mgmt planning process. MNR will advise WRACC of training and team –building opportunities at local, regional and provincial levels, and inquire re: WRACC interest in attending FMP training.	The standing item has been put on the WRACC agenda. WRACC has a representative on the 2008 FMP planning team and given opportunity and funding to be involved in all team meetings, training, and team-building exercises. WRACC was involved in the Desired Forest and Benefits meeting and FMP training during monthly WRACC meetings. MNR District Manager met to resolve funding concerns. Continued effort is required to build the rapport between WRACC and the MNR – See Recommendation # 3.
3. The MNR should ensure that the WRACC is involved in the issue resolution process as described in the Forest Management Planning Manual, and that its involvement and contributions are documented as prescribed.	MNR will follow FMPM issue resolution process, and bring non-FMP instances to the attention of WRACC by MNR and SFL reps, whereas instances during 2008 FMP development will be brought to WRACC attendance by WRACC planning team representative.	The CLUAH project has provided regular updates and presentations, and Domtar has advised WRACC on certification. WRACC participated in the issue resolution associated with minor amendment 2003-05, which was submitted on November 14, 2004 and was a proposal to gate Road 770 at the Oskabutuka River. Two issue resolution situations arose in early 2008 during the development of the 2008 FMP. In one case, local municipalities

		objected to the extension of Road 200 to Highway 631. The other also involved access and was brought about by a remote tourism operator. The recommendation has been addressed.
Principle: Forest Management Planning		
4. The Ministry, in collaboration with local stakeholders, Pukaskwa Park, and other appropriate parties should develop a land-use plan for the sub-region that includes the White River Forest.	The Northeast Region Planning Unit and Wawa District office are collaborating to use the NE Region Advisory Committee to explore resource access challenges on the White River, Nagagami and Magpie Forest units.	The CLUAH initiative was established and first meeting held in July 2006. The CLUAH process is described in Section 3.4.7. The process is not complete, but the intent of the recommendation has been addressed.
5. The MNR and Company should a develop protocol regarding receipt, cataloguing, dissemination and delegation of responsibility for responding to public correspondence.	MNR will maintain a database of comments and info regarding FMPs for the WRF. Public input will be brought to Planning team and opportunity provided to discuss it. The MNR District Forester will provide written responses to all input, in consultation with the Plan Author. A Public Summary Response form will be developed and a summary of public input will be prepared at the end of each stage of planning.	The Wawa /White River Area Forester is maintaining a database of comments re: 2008 FMP as a binder and Access database file. Comments have been brought to attention of planning team and written responses provided to commenter. Comments have been summarized at end of stages reached to date. The Planning Team for the 2008 FMP did a good job of cataloguing input and tracking responses to comments and correspondence received during the Public Consultation Process. Records were well organized and easily retrievable. Letters and requests for information were answered in a timely manner. The recommendation is considered to have been addressed.
6. The MNR should complete the SE profile as required by the FMPM and amend the 2003 Plan accordingly.	The MNR Area Forester will finalize the SE profile, it will be circulated for review, and amended into the plan.	The Area Forester completed the SE profile on May 27, 2005, circulated it for comment, revised it and it was amended into the FMP on Sept 12, 2005. The recommendation is considered to have been addressed.
7. The Forest Management Branch of MNR	MNR is discussing how to harmonize the	The new FMPM contains a table similar to

should correct the errors in Table FMP-5 and the corrected table, and relevant corrections to the plan text, should be incorporated into the 2003 plan as an amendment.	information provided in Table FMP-5. resulting habitat matrices were provided to the panning team starting with 2006 FMPs.	Table FMP-5 except that information beyond the MU is not shown. Given changes in the FMPM format, the recommendation is moot.
8. Corporate MNR should provide adequate funding so that values surveys can be conducted during FMP and AWS development.	MNR funding has been available through the FM Plan and is allocated to those FMP's under development. Prov MNR is responsible for funding values collection and provided funding across the area of the undertaking to address identified needs. Region makes allocation considering District funding requests. Wawa District will prioritize its strategy to provide values information and apply for annual funding.	MNR Wawa District has prioritized values needs and aerial values collection occurred in 2004/05 and 05/06. Wawa District applied annually for funding. A seasonal contact biologist was hired from Oct 2005 to June 2006 but NER funding was not forthcoming and the position was not renewed in 06/07.
9. The MNR should take measures to ensure that all required alterations relating to the manipulation of forest cover are certified by an R.P.F. at the appropriate stages in the development of future forest management plans as required by the FMPM in accordance with the intent of Term and Condition 62.(b)(ii) of the Class EA Decision and Declaration Order MNR-71.	This was interpreted by MNR to apply to amendments of SGR's only, and this plus other instances requiring RPF certification are described in the 2004 FMPM. An RPF will sign off on all alterations proposed by non-RPF's.	MNR Operations Forester has certified necessary levels of renewal and tending, and required expenditures. The list of required alterations on the LTMD was also certified by an RPF as required by 2004 FMPM. Both the preliminary and final lists of required alterations were certified by an MNR RPF as required by the FMPM (2004). The list of required alterations for the LTMD was also certified by an RPF, although this is not an explicit requirement of the FMPM (2004). Most importantly, perhaps, the FMPM (2004) now requires that the Terms of Reference for the Planning Team define "the roles and responsibilities of MNR plan reviewers, including designation of a coordinator for the lists of require alterations". This functionality (now a requirement) was the implied objective of the original recommendation.

10. The Company should ensure that all FMP amendments are catalogued in a master list of amendments.	Domtar will maintain a master list of amendments starting with the implementation of the 2003 FMP.	All FMP Amendments for the 2003 FMP have been catalogued in a master list of amendments in the front on the Company FMP amendment binder. This list is up-to-date (albeit with handwritten entries only for Amendments #10 to #14) and adequately cross-references associated AWS revisions. As such, it meets the 2004 FMPM requirements for the maintenance of an up-to-date list of amendment requests. The recommendation is considered to have been addressed.
11. The Ministry should assign responsibility for the distribution of FMP amendments and take immediate steps to ensure that complete amendment documentation is available at all required FMPM locations.	MNR will forward copies of each major and minor amendment to required locations after amendment approved; admin amendments provided annually. Master list will also be forward with new amendments/ annual updates.	The MNR provided evidence demonstrating that all of the amendments for the 2003 FMP were distributed to the mandatory locations specified in the FMPM (2004), although this occurred in aggregate and did not occur on an annual basis. The recommendation is considered to have been addressed.
Principle: Plan Implementation		
12. Regional and District MNR should immediately begin to work with the Company to identify and implement economically feasible opportunities to increase the chance of success of the prescribed slash pile burning program on the White River Forest.	MNR will work with Company to identify and implement economically feasible solutions to improve effectiveness of slash burning.	Domtar has worked with operators and contractors to improve slash piling. Co has submitted slash pile burn plan with draft AWS in January of each year and final plan has been submitted by Sept each year. The status report indicates that slash burning was conducted in 2004, 05 and 06 with good slash consumption (85 – 95%). However, the audit team remains concerned that the scope and effectiveness of slash management means a considerable loss of productive area, and issued Recommendation # 8. The recommendation is considered to have only been partially addressed.

13. The Company should take necessary steps to extend slash management to all harvest sites.	Domtar will monitor and report on area lost to roadside slash, and develop annual targets for the WRF by the end of 2004. Company will work towards targets starting in 2005.	Company set a target of slash mgmt on 75% of the area harvested, and has been increasing % of harvest area treated to 66-68% in 04/05 and 05/06. It did not appear that this target was reached – see Recommendation # 8.
14. Domtar, Weyerhaeuser, Columbia Forest Products, and regional MNR should review and revise the white birch and poplar yield curves for the next FMP, or before any additional commitments are made by corporate MNR for these species.	The 2003 FMP team included a hardwood user rep who was involved in the review and sign-off of the hardwood curves. Approach will be continued in 2008 FMP development. Data from permanent growth plots will be used to supplement provincial data.	Columbia and Weyerhaeuser each had reps on the planning team, and had a consultant to help them develop yields. The reduction in yields came into effect with the 2008 FMP. The reduction in yields matches the over-estimate figure suggested in the 2003 IFA. The recommendation is considered to have been addressed.
15. The Company should ensure that the installation and maintenance of all water crossing culverts follow the practices identified in the Environmental Guidelines for Access Roads and Water Crossings.	All new water crossing installations will be completed with trained and experienced operators, and will assess training needs and provide required training as needed.	Crossings were prioritized in terms of need for remedial action and 14 received some remedial work since 2004. New water crossing installation training package was developed and all staff have received training. Although significant improvements were made, two recommendations regarding crossings (Recommendation # 9 and Recommendation # 10) are made in this audit.
16. The Company should review its cross drainage installation program to improve the planning, installation and maintenance of cross drainage culverts on the Forest in this review.	The Company will review its standard Operating procedures with its operations staff and overlapping licensees during the annual spring start up meeting.	Company SOP 04 was revised to include a section on cross-drainage and Domtar's Northern Ontario EMS Handbook contains a section on cross drainage. No significant issues regarding cross drainage were identified in this audit. The recommendation has been addressed.
17. The Company should ensure that grader operators have appropriate training, good grading practices are implemented, road maintenance practices are monitored,	The Company will review its standard Operating procedures with its operations staff and overlapping licensees during the annual spring start up meeting.	Company SOP 04 was revised to include a section on grading and an EMS Powerpoint presentation and field handbook section was developed that is shown to all employees and

and deficient results rectified.		overlapping licensees. Regular EMS audits include grading practices. No issues regarding grading were identified in this audit. The recommendation has been addressed.
	Principle: Systems Support	
18. Corporate MNR should immediately increase human resources allocated to fulfill Area Forester responsibilities on the White River and Wawa Forests until such time as the Wawa-Algoma amalgamation is completed. Following the amalgamation, MNR should assess the workload associated with the amalgamated Forest and adjust Forester staff levels if necessary.	MNR will hire a contract forester to assist the three foresters in the Wawa District Office, with the four forests administered out of the Wawa office.	A contract forester was hired in November 2004 and retained until June 2006. The Protocol for the amalgamated Wawa and Algoma Forests transfers Area Forester responsibilities to the SSM District as of April 1, 2005. The planning workload for the Wawa portion of he Algoma Forest also shifted away from the Wawa /White River Area Forester. At present, the position of Area Forester is vacant and the Acting Area Supervisor, who was previously Area Forester, is undertaking many of the Area Forester duties. An intern was also hired to provide assistance. The recommendation is considered to have been addressed.
19. The MNR should develop and implement a comprehensive document and quality control strategy.	Wawa District Office will develop and implement a central filing system for current documents and archive outdated documents as required.	A filing Task team was established in the fall of 2006 and the new system was implemented in march 2007, after training provided. Older documents were reviewed and archived as appropriate. A new District central filing system now contains key forest management documents and records. District staff was able to retrieve all documents and reports that were requested by the audit team. Although some common work areas still appeared to have overflow documents and reports, the general state of forestry records appeared to be in good order.

Principle: Monitoring		
20. The Company should immediately begin to report all free-to-grow survey results, including areas that did not meet the silvicultural standards, as per the FMPM specifications for Table AR-7.	The Company has reported FTG results as per the FMPM specifications for Table AR-7, along with the additional info required to prepare supplemental tables AR-7a and AR-7b, in the 2003/04 AR. Under the 2004 FMPM, Table AR-14 replaces AR-7, and the company has completed the table as required in each AR from 2004/05 to 2006/07.	The AR tables address this issue by reporting on all area which is assessed for free-to-grow status, including area that is found to be below regeneration standards at the time of assessment. Completed.
21. The Company should ensure that Annual Reports contain more explanatory text on emerging trends, reasons for deviations from planned activities, and other relevant information.	The Annual Reports for the audit period have all included text that speaks to the annual progress towards FMP objectives for the silviculture program, including renewal, tending, and renewal support. Reasons were put forward for any shortfalls, and the audit team found these to be reasonable. Changes in annual report formats under the 2004 FMPM have facilitated some aspects of the analysis of emerging trends and progress towards FMP objectives.	Recommendation has been addressed. Completed.
22. MNR should provide the Company with AR-12's and text according to the required timelines to facilitate their review and incorporation into the Company's Annual Report.	MNR will consolidate responsibility for preparing the AR-12 tables for all forests managed out of Wawa District. The District Technical Specialist will work with Company compliance reps to generate required tables. Domtar will ensure that FOIP reports will be input according to prescribed timelines.	The District Forestry Technical Specialist has taken responsibility for the AR-12 tables and text, and has used the new FOIP system to generate the AR-12 tables for 2004/05 and 2005/06 AR's. Domtar has met the FOIP input timelines. The late submission of Table AR-12 to industry for incorporation into the Annual Report is no longer an issue. Tables AR-12 & AR-13 (2004 FMPM) can now be generated automatically through the Provincial FOIP system.

Principle: Achievement of Management Objectives and Forest Sustainability		
No recommendations		
Principle: Licence Obligations		
23. Weyerhaeuser should pay the Crown charges owing for timber harvested from the White River Forest.	Weyerhaeuser is fully paid up and is now recognized as an agent of the crown and pays dues directly to the Crown.	Completed.
24. MNR should demonstrate compliance with the SFL obligation regarding the notification of mining claim holders following AWS submission.	MNR District will notify mining claim holders as per Part D FMPM requirements.	This has been done annually since the 2004/05 AWS. Evidence was provided demonstrating that letters were sent to mining claim holders in 2005/06, 2006/07 & 2007/08. 12 letters were sent In 2006/07 and 14 were sent in 2007/08 (with 8 sent to the same individual or corporation). Lists of mining claim holders were NOT retained at the request of MNDM in accordance with the requirements of the Freedom of Information and Protection of Privacy Act (FIPPA).
25. District MNR should initiate a process for resolving two apparent boundary errors on the White River Forest, bringing together the affected SFL-holders and MNR licensing staff to consider the issue and move towards a resolution.	The MNR Area Forester will contact the White River SFL, the Magpie SFL, and Nagagami SFL and engage them in a meeting to resolve the questions regarding boundary locations, with Boundary procedure FOR 05 01 04 will be used to provide direction.	Domtar and Dubreuil Forest Products suggested a resolution that has been adopted and is being implemented in the new planning inventories. The 2008 FMP was based on the corrected boundary of the WRF. The recommendation is considered to have been addressed.

3.8.3 Volume Commitments

Appendix E of the SFL lists commitments to two hardwood users – Weyerhaeuser's OSB mill at Limer and Columbia Forest Products' Levesque plywood mill at Hearst. Table 11 shows the commitment levels to each Company's operation (Comp.), the species and product type that is committed, and the actual annual delivery of wood volumes during the five years of the audit period. The right-hand columns show the average timber volume delivered and the percentage of the commitment that was supplied.

Table 11. Deliveries of Harvested Timber against Commitments.

Comp.	Species	Commit. Volume (m^3/yr)	03/04 (m^3)	04/05 (m^3)	05/06 (m^3)	06/07 (m^3)	07/08 (m^3)	Avg (m^3)	Pct of commit. supplied
Weyer.	Poplar	200,000	57,497	26,169	74,307	49,332	0	41,461	20.73%
Weyer.	Birch	40,000	8,189	1,137	37	0	0	1,873	4.68%
Colum.	Poplar Veneer	43,200	8,061	1,642	3,401	5,234	0	3,668	8.49%
SUM		283,200	73,747	28,948	77,745	54,566	0	47,001	16.60%

Table 11 shows that notwithstanding the lack of any volume sent to the commitment holders in 2007/08, the percentage of the committed volume that was actually supplied was very low.

One of the commitment holders reported that there was a good relationship between his company and Domtar however the delivery of the committed volume was made difficult by terms of the union agreement, which resulted in the need for a second pass harvest for the hardwood component. Shortly before Weyerhaeuser stopped taking wood from the White River Forest (i.e. in the fall of 2006), Domtar began delivering wood directly to Weyerhaeuser's mill, which simplified wood acquisition.

Table 11 shows that the total poplar volume that is committed 243,200 m^3/yr, and this is well-above the projected poplar harvest. The projected white birch harvest generally exceeds or at least matches the 2008 FMP projection, although it is worth noting that the white birch harvest has not been more than 10% of the planned level during the past two plan terms (See Appendix 1). This issue was discussed in section 3.4.3 and Recommendation # 6 was issued to address the inconsistency between the poplar commitments in particular and the forest's productive capacity.

3.8.4 Forest Renewal Trust

The required minimum balance was in place at March 31, for all five years of the audit period, that is, at March 31, 2004, through to March 31, 2008. After the 2007 mill shutdown, surplus money in the fund, i.e., over and above the minimum balance, was used to continue silviculture activities in the years 2007/08 (aerial seeding of jack pine and cone collection) and 2008/09 (tending). At the time of the field audit (September 2008) extra funds in the Forest Renewal Trust for the White River Forest had mostly been expended, with only a small surplus remaining over the minimum balance.

We reviewed company records for items invoiced to the Forest Renewal Trust for the years 2003/04 through 2007/08, for the White River Forest SFL. All invoices for this period were examined and the expenses were found to be eligible and appropriate as per the requirements of the Renewal Trust Agreement. Domtar maintains good documentation of the silvicultural expenses, and maps and records of the treatment projects as required by the licence.

Reviews of the renewal rates were conducted by the Company and MNR as required by the licence. Rate reviews were conducted annually, and increases to the rate for conifers (spruce, jack pine and balsam fir; red and white pine) were made in each year from 2005 to 2008. The conifer rate had previously been decreased to reduce a large surplus of funds which had accumulated in the Forest Renewal Trust, and these increases were intended to bring the rate back in line with the actual costs of the silvicultural program. The rates for poplar and white birch remained constant throughout the audit period.

3.8.5 Specified Procedures Field Assessment

We conducted a field assessment of approximately 26% of all the silvicultural treatments that were invoiced to the Forest Renewal Trust for the year 2006-2007 (1,109 of 4,002 ha). In all cases, the treatments were in place as mapped in the annual reports, were appropriate for the site conditions, and had been implemented to a good standard of quality. We also assessed 21% of the areas surveyed for free-to-grow status in the year 2006-2007 (1,600 of 7,626 ha). We verified the free-to-grow status of all the areas we checked, as well as a sample of the FRI stand descriptions (species composition height, and stocking values) which were generated during the Company surveys.

The Specified Procedures report for the White River Forest, prepared by KPMG, did not identify any errors or significant differences between areas reported on invoices, map records, and in Annual Reports. The report identified a number of vague items. We checked the Company's documentation for these, and all items were found to be eligible expenses.

3.8.6 Forestry Futures Trust Fund

There were two projects implemented during the audit period using Forestry Futures Trust Funding. These were:

1. Tending of plantations on the Crocker Lake wildfire area, completed in the year 2003-2004, and
2. Pre-commercial thinning in dense seeded or natural jack pine stands, which was conducted in 2003-2004 and 2004-2005.

All project reports had been submitted to the Forestry Futures Trust (FFT) as required and were of good quality. Domtar maintains good records and maps for these projects. Reporting for these projects has been completed and the FFT had approved all final reports submitted for completed projects. Domtar tracks these projects in its GIS-based silvicultural system for reporting purposes, and accomplishments from these projects were reported in Annual Reports.

We verified a sample of these treatments during the field audit, and found that the work had been completed to a good standard and was effective. The pre-commercial thinning

projects had been completed by First Nation contractors, which provided social and economic benefits to the local Aboriginal communities.

3.8.7 Inventory and Monitoring Obligations

Free-to-grow Assessments

The Company is meeting its obligations to conduct of free-to-grow surveys. For the 2003 FMP term, the forecasted area of free-to-grow (FTG) assessment was 23,788 ha. After four years, 29,037 ha had been assessed, or 122% of the forecast, at a rate of approximately 7,260 ha per year.

The FTG status of treated sites (including natural regeneration areas) is tracked in Domtar's silvicultural system for the annual scheduling of assessments. Assessed areas which do not meet the silvicultural standards are automatically scheduled for further treatment or re-assessment at a later time, as appropriate. Domtar had conducted a good analysis of its FTG data for use in preparation of the 2008 FMP. The FTG information was used to help evaluate successional trends by silvicultural intensity, for the verification of modelling assumptions, and for the refinement of SGRs.

Table 12 shows FTG assessment results by Forest Units, for the four-year period from 2003/04 to 2006/07. On average, 90% of the areas assessed were considered to be FTG and successfully renewed. Most of the remaining areas were regenerating well, but needed additional height growth to meet the silvicultural standards for the treatments applied to the area, and will be reassessed in 2 to 3 years time.

Table 12. Summary of free-to-grow survey results for the White River Forest, 2003 to 2006.

Forest unit	Area Assessed (ha)	Area successfully regenerated (ha)	Renewal Success Rate (%)	Area renewed to projected Forest Unit	Regen Success Rate (%)
PJ1	10,026	9,140	91%	5,186	52%
PJ2	2,531	2,324	92%	520	21%
SP1	2,939	2,798	95%	375	13%
SF1	860	846	98%	159	18%
SB1	1,872	1,401	75%	153	8%
LC1	378	343	91%	27	7%
PO1	6,700	5,899	88%	2,126	32%
BW1	1,213	1,129	93%	215	18%
MW1	772	649	84%	101	13%
MW2	1,347	1,196	89%	584	43%
Total	**29,037**	**26,178**	**90%**	**9,446**	**33%**

Of some concern is the fact that only 33% of the total surveyed area had developed species compositions consistent with the projected Forest Unit (See right-hand column in Table 12 titled "Regeneration Success"). In part, this result is an artefact of the data, specifically, the historical forest units for the surveyed areas are not accurate in some

cases, due to the limitations of the older FRI data from which this was derived, as well as inaccuracies in historical maps (which were largely hand-drawn) of silvicultural projects. Ideally, the Company should be using the forest unit at the time of depletion as a reference point for monitoring species composition changes, not the FRI inventory label, which may be inaccurate for a variety of reasons, as is recommended below.

A more significant complication is that the composition of the stand at maturity may be different from its composition at the time of the FTG assessment. It is normal for there to be changes in species composition between the time of FTG assessment (at the approximate age of 10 years) and the development of a stand with a stable, closed canopy (at ages between 30-50 years, depending on the forest unit). Companies generally do not collect stand development data after FTG has been achieved, and the issue has not received a great deal of attention. However, it is emerging that the regeneration success rates are quite low on many Ontario forests. White River is in a fortunate position since a new forest inventory will probably be prepared soon to replace the current, 20-year old inventory. When the new inventory is ready, it will be possible to examine the current species composition of areas that were harvested during the last 25 years. This analysis will provide a considerable amount of actual stand development information and provide useful insight as to the likely forest unit at stand maturity.

Recommendation # 15 is intended to direct the Company and District MNR to work together to better understand why the regeneration success rate is so low, and provide a basis for improving the forecasts of stand development for future FMPs.

Recommendation # 15

> The Company and District MNR are to determine the data requirements, corresponding acquisition processes, and subsequent analyses which are most appropriate for determining the reasons for the low level of regeneration success. The Company and District MNR will jointly develop and implement a silvicultural effectiveness monitoring program to meet these needs and develop a strategy for the use of free-to grow assessment information in the development of the next FMP.

It is anticipated that data collection /analysis processes will need to be developed for the two issues discussed above, as well as to confirm the type of forest produced following the implementation of various renewal packages on various sites.

3.8.8 Silvicultural Achievements

Table 13 compares the forecast targets for renewal activities (natural and artificial regeneration, site preparation, and tending) with the actual achievements for the 2003-2008 planning term for the White River Forest. Since the area harvested during the FMP term was only 59% of the forecast area, the rightmost column shows values for renewal and site preparation activities, pro-rated to the actual harvest level. This is because the area available for these activities in any year largely depends on the area that was actually harvested in the previous year (plus there may also be small amounts of untreated areas carried over from previous years). Tending values were not pro-rated, since the area to be tended is not directly related to the harvest levels from year to year.

Table 13. Silvicultural accomplishments for the 2003-2008 FMP term as a percentage of the planned activities for the White River Forest.

Renewal	Five-yr Total	2003 FMP-25 Forecast	% of forecast	% of forecast (pro-rated to the actual harvest level)
Natural Regeneration	10,018	14,875	67%	114%
Artificial Regeneration				
Planting	4,178	7,370	57%	96%
Seeding	1,807	2,926	62%	104%
Sub-total Artificial	5,985	10,296	58%	98%
Total Regeneration	16,003	25,171	64%	108%
Site Preparation				
Mechanical	4,785	11,137	43%	73%
Chemical	32	784	4%	7%
Total Site Preparation	4,817	11,921	40%	68%
Tending				
Cleaning	4,060	7,056	58%	*n/a*
Pre-commercial thinning	286	1,000	29%	*n/a*
Total Tending	4,346	8,840	49%	*n/a*

For the 2003 FMP term, the pro-rated levels of natural and artificial regeneration exceed the FMP forecasts. The total regeneration effort, proportional to the actual harvest area, was 108% of the forecast. Most of the area that was artificially regenerated was site prepared, although some areas were planted without site preparation, where the site conditions were appropriate. As discussed previously, there was a surplus of area that was site prepared during the FMP term, in 2006/07, which had not yet received a regeneration treatment.

Actual tending levels for the first four years of the FMP term were less than the forecast at 49%, but our field assessments indicated that the amount of area that was cleaned was appropriate for the sites and site conditions that we reviewed. Pre-commercial thinning was considerably less than expected at 29% of the forecast, but this is due to the fact that areas that have the appropriate stand conditions for this treatment (e.g., age, species composition, and density) and are well-accessed, were not available within the five-year period to the extent forecast.

Present Status of the Silviculture Program for the White River Forest

Because there is no scheduled resumption of Company woodlands operations, the audit team closely examined the extent of existing silviculture liabilities and the availability of funds in the Forest Renewal Trust to cover them. The auditors were concerned that without the revenues from a full-scale harvest operation, perhaps the outstanding silvicultural work on the forest could not be completed without depleting the value of the FRT below the minimum required level.

Domtar continued to do some silvicultural and tending work on the forest after the closure of its woodlands operations. In the current year (2008/09), Domtar aerially tended approximately 1,200 ha. Although this work was done outside the time frame of the audit, the completion of this work means that the tending needs for artificially regenerated sites on the WRF have been addressed in full for the immediate future. Domtar also completed a cone collection program in the year 2007/08. The seed inventory available for the WRF, at the time of the field audit, is consistent with the FMP forecast.

With the short-term tending needs take care of, and the major concern centred on the renewal of the 2,085 ha harvested in the final year of Company operations, 2006/07. Based on the proportions of different forest units comprising the harvest area, some 1,300 ha was expected to be treated by natural regeneration. The remaining 785 ha was scheduled to receive basic or intensive treatments (i.e., site preparation, seeding or planting, and follow-up cleaning if necessary) and none of this work has been done.

In addition, some area from the 2005/06 harvest still requires treatment. In section 3.4.4, we identified that 1,152 ha of mechanical site preparation was undertaken in 2006/07, of which 263 ha was seeded in 2007/08. This leaves 889 ha to be treated. It is likely that approximately two-thirds of this area will regenerate naturally and the roughly 295 ha that remains will need to be planted.

In total, the area needing artificial treatment is on the order of 1,080 ha. This equates to approximately 20% of one year of planned harvest area on the WRF, and equals some 33% of the average annual area actually harvested during the audit period. This is not a large silvicultural liability.

Based on the above analysis, we believe that when harvest operations begin again on the WRF, the SFL-holder will be well-positioned to begin silvicultural operations, once revenues from harvesting begin to flow into the FRT. Also, the amount of outstanding silvicultural work on the Forest is at a level which is to be expected in any year; Domtar has done a good job of keeping up with its silvicultural obligations for the WRF.

We noted previously that the tree planting program for the year 2007/08 was delayed by Domtar due to the shut down of operations on the White River Forest. Domtar decided to store a total of 1,264,200 containerized seedlings, which were grown to support the planned 2007/08 tree planting program, in the hope of being able to plant them in 2008/09. Unfortunately, during storage they became diseased and root-bound and had to be destroyed. In addition, area that was site prepared in 2006/07 was not planted in the following year, although a portion of it was treated by aerial seeding of jack pine. Both the site preparation and the growing of the tree seedlings was paid for by the Forest Renewal Trust. There was concern expressed by MNR and by the LCC about the payments for these activities using public funds, when the activities were not completed on the White River Forest. However, we believe that in the case of the tree seedlings, the Company made a reasonable effort to make use of the seedlings on other forest management units, and the damage to the seedlings incurred during storage, which ultimately led to their having to be destroyed, was unfortunate but unintentional.

In the case of the site preparation, it is possible that some or all of the remaining 2006/07 mechanical site preparation area will have to be re-treated to make it suitable

for artificial regeneration, depending on the site conditions on these areas and when silvicultural operations on the White River Forest re-commence. At that time, we suggest that MNR and the Company should decide upon the most appropriate means of funding these activities, depending on the scope of operations to be undertaken. In the meantime we believe that there is sufficient guidance in this regard contained within the text of the SFL licence document (i.e. the renewal charges can be raised to cover the expenditures).

We offer the following recommendation to address the outstanding silvicultural work on the WRF.

Recommendation # 16

> The Company is to ensure that any untreated harvest area on the White River Forest receives appropriate silvicultural treatment and is satisfactorily regenerated as per the Company's contractual obligations, and according to the approved FMP. The Company will also conduct silvicultural effectiveness monitoring on these areas, to determine the most appropriate treatment needs, and to monitor the effectiveness of the applied treatments, including natural regeneration.

Normally, silvicultural effectiveness monitoring is undertaken two years after depletion, but in this case, we are recommending it be undertaken when SFL-holder operations resume on the forest.

3.8.9 Concluding Recommendation

Unlike in previous years, the IFAPP directs auditors to use one of three recommendations regarding licence extension: 1) where no serious issues are found in the management of the forest, auditors are directed to recommend that the licence be extended without conditions; 2) where significant issues are found, auditors may elect to recommend licence extension providing that key conditions are met; and 3) where serious issues are found (i.e. management has not been in compliance with legislation, policies or licences, or where sustainability is at stake), auditors are to recommend that licence extension be withheld. Wording is prescribed for the recommendation in each of these situations.

As is apparent in this report, there were no serious issues in the management of the White River Forest. Thus the Audit Team considers the first situation is the most applicable of the three available choices, and concludes that management of the White River Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Domtar (SFL # 550399). Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. **The audit team recommends the Minister extend the term of Sustainable Forest Licence #550399 for a further five years.**

Some stakeholders may wonder why this audit concludes with a recommendation to extend a licence where the licensee has not operated for the past two years and Company woodlands operations remain suspended indefinitely. This concern was

discussed considerably amongst the audit team. Although we unreservedly recognize the good quality of forest management, we note that circumstances such as those existing on the WRF, in which operations have been suspended for some time, are not captured in the wording of the options for audit conclusions in the IFAPP. We suggest that the MNR may want to consider revising IFAPP to allow an audit team to depart from the prescribed options for audit conclusions when it encounters unusual or unprecedented conditions.

4.0 Summary of Conclusions and Recommendations

The 2008 Independent Forest Audit of the White River Forest covered the period from April 1, 2003 to March 31, 2008, which is also the period covered by the 2003 FMP. The new 2008 FMP, which will remain in effect for ten years, came into effect in mid-April 2008. This audit does not review the implementation of that plan, but it does evaluate the process of developing it.

The audit results are very good on the whole, with a total of 16 recommendations being issued (excluding the concluding recommendation), as well as two best practices. This number of recommendations is well below the 25 recommendations issued for the previous (2003) White River IFA, which was a good audit. We believe that the high level of achievement observed in this audit is due to a variety of factors:

- the commitment of the Company and MNR staff, and other interested stakeholders including the WRACC, to a high standard of management, and the very good rapport between all of the parties;

- a very high quality 2008 FMP which did not contain any major strategic issues or shortcomings (when present, major planning issues often lead to multiple recommendations);

- the continued evolution of forest management is leading to improved practices, as evidenced by continued emphasis on training, the implementation of new guidelines for forest management (e.g. NDPEG), the certification of the White River Forest under the Canadian National Boreal Standard; and

- the results of the efforts by the Company and MNR to address and correct identified shortcomings, such as were identified in the previous IFA.

The Audit Team felt that the 2008 FMP was worthy of a best practice and commends the planning team for their efforts, as well as the many other contributors to the plan. A second best practice was awarded to the District MNR for its creative and persistent efforts to overcome obstacles which prevented Pic Mobert and Pic River from harvesting timber on the White River Forest from 2002 to 2006.

Of the sixteen recommendations, five are directed solely at the Company, five at District MNR, and two at both of these parties. These recommendations and best practices are aggregated in Table 14. The other four recommendations are directed at Corporate MNR (Northeast Regional office and/or main office Forest Management Branch), and these are shown separately in Table 15. Not surprisingly, the three recommendations under plan implementation are directed towards the Company – one is directed at a specific culvert installation, one concerns Company compliance inspections of culverts and one is intended to encourage the Company to continue working to improve slash management.

Three of the recommendations for District MNR were related to the LCC and First Nations, which are both areas of MNR responsibility. The relationship between MNR and WRACC has been strained and we understand why WRACC members feel under-

appreciated. At the same time we urge WRACC members to consider that their views and focus on access are quite predictable and this tends to undercut WRACC's credibility. Two recommendations were also directed at District MNR's compliance and monitoring activities.

One of the four recommendations for Corporate MNR concerns the hardwood volume commitments, which are based on unattainable target volumes, now that it is recognized that hardwood yields are significantly lower than previously thought. Another recommends that the manner in which sustainability is assessed be reviewed, since the Report on Past Forest Operations and the Trend Analysis both identified that the majority of the indicators they were required to consider could not be meaningfully assessed. The other two recommendations are for greater funding for LCCs and values collection. While recommendations to increase funding may not seem to be appropriate at a time when the economy is weak, the audit team feels that the benefits of maintaining the functionality and goodwill of the LCC representatives outweighs the cost of the increase of some several thousand dollars per year per LCC that would likely satisfy the intent of Recommendation # 2. The cost of maintaining updated values would be higher, but again, is on average lower than the costs typically associated with changes to operational plans necessitated by the discovery of a value during operations, and the cost of the paperwork to make the FMP amendment. MNR's unwillingness to regularly update values information, which is the MNR's responsibility, effectively transfers the risk associated with undiscovered values to the Company.

One of the key concerns which we had prior to the field audit was that the suspension of Company woodland operations in January 2007 may have left a backlog of untreated area. We assessed the nature and amount of the untreated area, and concluded that an area of roughly 1,080 ha will require artificial regeneration, and possibly tending treatments as well, to bring it to free-to-grow status, in accordance with the applicable SGRs. The backlog area is approximately equal to one-third of the average actual annual harvest area; having this amount of area waiting for treatment is considered to be normal for any forest management unit in Ontario. The funds within the Forest Renewal Trust are just above the minimum required balance and are sufficient to treat all of the outstanding area. We also observed that the Company conducted seeding operations on the forest in 2007 and tending in 2008, and was thus using the portion of the Forest Renewal Trust above the minimum required balance to undertake some management actions.

Unfortunately, the Company's decision to suspend operations on the Forest resulted in the loss of 1,264,200 containerized seedlings, which had been grown to support the planned 2007/08 tree planting program. In addition, Domtar completed 1,152 ha of mechanical site preparation in 2006/07 but much of this area did not receive regeneration treatments due to the decision to delay the 2007/08 tree planting program. In 2007/08, the Company seeded 263 ha of the area with jack pine. We concluded that since the Company made reasonable efforts to store the seedlings and prevent their loss, and since the level of funds in the Forest Renewal Trust did not fall below the minimum required balance, the Company is compliant with its legal obligations. Finally, an additional safeguard in the renewal funding system is the option of a future increase in renewal rates should additional funds be required to complete renewal of the backlog.

Overall, this audit concludes that the management of the White River Forest was in effective compliance with the Crown Forest Sustainability Act, the terms of the SFL, and

the policies and regulations of Ontario. The Company's compliance record was very good over the audit term, and there was a very low number of amendments associated with the 2003 FMP. We feel that the general direction of the 2003 FMP was implemented, notwithstanding the considerable under-harvest that occurred due to two periods, totaling approximately two years, when Domtar's operations in the White River Forest and sawmill were suspended due to unfavourable market conditions. The 2008 FMP essentially represents a continuation of the general management direction, subject to changes necessitated by new regulations (e.g. NDPEG) and improved information (e.g. revised hardwood yield curves).

In summary, the audit team concludes that management of the White River Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Domtar (SFL # 550399). Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of Sustainable Forest Licence #550399 for a further five years.

Table 14 summarizes the best practices and the recommendations directed to the Company and District MNR. Table 15 lists the recommendations directed at the Corporate levels of MNR. The recommendations are numbered according to the sequence that they appear in the body of the audit report.

Table 14. Recommendations from this Audit directed at the Company and Wawa District MNR.

Principle: Commitment
None.
Principle: Public Participation
Best Practice: 1. Wawa District MNR has been strongly supportive in furthering Pic Mobert and Pic River participation in planning and in the forest harvest sector. **Recommendations:** 1. Wawa District MNR is to ensure that minutes of all LCC meetings are available in its records. 3. Wawa District MNR is to continue its efforts to maintain a constructive relationship with the WRACC. 4. That MNR and Domtar work with Pic River and Pic Mobert to provide a more sound legal basis for the allocations which have been granted to Pic River First Nation (through PRDC) and Pic Mobert First Nation. 5. Wawa District MNR is to initiate consultation with Michipicoten First Nation and the Hornepayne aboriginal community to identify ways to achieve a more equal participation in the benefits provided through forest management planning on one or more of the forests in Wawa District.
Principle: Forest Management Planning
Best Practice: 2. The Team that developed the 2008 FMP has produced an exceptionally good document.
Principle: Plan Implementation
8. The Company is to review and improve the implementation of its slash pile management approach so that it is more effective at minimizing the loss of productive area across all forest types. 9. The Company is to remove the culvert at water crossing 76-5 immediately after harvesting and silviculture work on areas accessed by road 20-01 has been completed. 10. The Company is to identify and implement means to ensure thorough compliance inspections of culvert installations.

Principle: Systems Support

None.

Principle: Monitoring

11. Wawa District MNR is to resume its production of annual compliance plans in accordance with the requirements of the Forest Compliance Handbook (2008) and structure them to provide information summaries and forecasts at the Forest/SFL level.

12. The Company is to ensure that its future compliance plans comply with the requirements for Annual Compliance Schedules of Action as outlined in Directive and Procedure FOR 07 02 04 in the Forest Compliance Handbook (2008).

13. Wawa District MNR is to ensure that the staff and resources are made available to plan and implement an appropriate level of field validation and quality assurance surveys for the Company's program of silvicultural effectiveness monitoring for the White River Forest.

Principle: Sustainability

None

Principle: Contractual Obligations

15. The Company and District MNR are to determine the data requirements, corresponding acquisition processes, and subsequent analyses which are most appropriate for determining the reasons for the low level of regeneration success. The Company and District MNR will jointly develop and implement a silvicultural effectiveness monitoring program to meet these needs and develop a strategy for the use of free-to grow assessment information in the development of the next FMP.

16. The Company is to ensure that any untreated harvest area on the White River Forest receives appropriate silvicultural treatment and is satisfactorily regenerated as per the Company's contractual obligations, and according to the approved FMP. The Company will also conduct silvicultural effectiveness monitoring on these areas, to determine the most appropriate treatment needs, and to monitor the effectiveness of the applied treatments, including natural regeneration.

Concluding Recommendation

The audit team concludes that management of the White River Forest was generally in compliance with the legislation, regulations and policies that were in effect during the term covered by the audit, and the Forest was managed in compliance with the terms and conditions of the Sustainable Forest Licence held by Domtar (SFL # 550399). Forest sustainability is being achieved, as assessed through the Independent Forest Audit Process and Protocol. The audit team recommends the Minister extend the term of Sustainable Forest Licence #550399 for a further five years.

Table 15. Recommendations from this Audit directed at the Corporate Levels of MNR.

Principle: Commitment
None.
Principle: Public Participation
Recommendation: 2. Corporate MNR is to provide sufficient funding to enable the Wawa District LCCs to continue operations during all phases of FMP development and implementation.
Principle: Forest Management Planning
Recommendations: 6. Corporate MNR is to review and revise the hardwood volume commitments on the WRF at an appropriate juncture. 7. Corporate MNR is to ensure that adequate funding for values collection is made available more frequently to maintain currency of information used in values protection.
Principle: Plan Implementation
None.
Principle: System Support
None.
Principle: Monitoring
None.
Principle: Sustainability
14. Corporate MNR is to evaluate and re-consider how it requires licensees to track and report on sustainability.

Principle: Contractual Obligations
None

Appendix A: Comparison and Trend Analysis of Planned Versus Actual Forest Operations Report for the White River Forest

The Comparison and Trend Analysis Report which follows as Appendix A was produced by Domtar Inc. Although the Report was reviewed by the Audit Team, the Audit Team had no role in writing it.

Domtar

WHITE RIVER FOREST

(Sustainable Forest License # 550399)

Comparison and Trend Analysis of Planned vs. Actual Forest Operations

2003-2008 Forest Management Plan

Wawa District, Northeast Region
Domtar Inc.

For the period of April 1, 2003 to March 31, 2008.

I hereby certify that this Comparison and Trend Analysis Report is complete and accurate, and has been prepared to the best of my professional skill and judgement using the information available and provided. The report has been written in accordance with the requirements of the *Independent Forest Audit Process and Protocol, 2008.*

R.P.F. Seal

Michael Furniss, R.P.F
Domtar Inc.

Oct. 21/08
Date

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1.0 INTRODUCTION

This trend analysis report has been prepared for the 2008 Independent Forest Audit (IFA) of the White River Sustainable Forest Licence (also referred to as the **forest** throughout the remainder of text). This report compares the planned versus the actual forest operations that occurred during the 2003-2008 Forest Management Plan (FMP). The report also includes data from the two previous FMP periods (1993-1998 TMP and the 1998-2003 FMP) to allow for the analysis of trends over time.

The 2003 to 2008 period has been particularly challenging for the forest products industry. A protracted trade dispute, significant appreciation of the Canadian dollar, and a significant slowdown in US housing starts has resulted in widespread shutdowns across the industry. Consumers of fibre from the White River Forest have not been immune to these shutdowns. Domtar's White River sawmill was shut down due to poor markets between June 2003 and February 2004 (9 months) and, most recently was indefinitely closed in June 2007 (ongoing). In preparation for the June 2007 closure, harvesting activities were suspended January 2007. Weyerhaeuser also took steps to curtail deliveries to their Wawa oriented strand board mill a number of times during the plan period. The most recent decision was the current indefinite shutdown in October of 2007.

As a result of the above noted market conditions, there has only been approximately 3 years of activity on the White River Forest. This has resulted in significant shortfalls in almost all activity areas when compared to the planned activity levels. When annualized, or compared to the 3-year operating period, activity levels approximate plan. All parties are optimistic that the current downturn in the forest products sector will rebound and return to normal in the near future.

For the purposes of this report, the values identified as "Current" plan term are those from the plan in effect on March 31st of the audit year (ie. 2003-2008 FMP). The "Future" plan term refers to 2008-2018 FMP.

Due to the timing of the 2008 IFA, the numbers and values identified in this trend analysis for the 2003-2008 FMP period are based upon the year 4 Annual Report (AR). The year 4 AR information was used because this Comparison and Trend Analysis report is required prior to completion of the 2007-2008 AR (10-year report), and all the required information was not available (ie. depletions).

Although the information portrayed in this report is not for the entire 2003-2008 FMP period, it must be noted that minimal operations occurred during the 2007-2008 Annual Work Schedule (AWS) due to the indefinite shutdown of the Domtar Inc. White River operation. The only information missing from the report are the 2007-2008 depletions associated with the First Nations harvest allocations. These allocations are licenced under FRL #A62761 to the Ojibways of the Pic River First Nation (Pic River Development Corp.). The depleted harvest allocations associated with the First Nations operation will account for 323 ha of additional depletion area (assuming 100% harvest). Estimates have not been included in this report, as the Independent Forest Audit Process and Protocol

(OMNR, 2008) clearly states, *"estimates are not to be used where annual report data is not available"*.

Since April 1, 2002, the White River Forest has been managed under Sustainable Forest Licence (SFL) # 550399, signed by the Minister of Natural Resources on May 24th, 2005. The White River SFL was established to provide a continuous supply of forest products to the Domtar sawmill located in White River and to ensure that the Forest is managed sustainably. In addition to supplying the White River sawmill with conifer (*i.e.*, Spruce, Pine, Fir; commonly referred to as SPF) sawlogs, there are commitments for hardwood (*i.e.*, Po, Bw) timber from this Forest to a variety of mills within the Region.

Under the terms of the SFL for the Forest, Domtar is responsible for preparing forest management plans, conducting forest operations in accordance with approved plans, monitoring and reporting on compliance, and gathering information for the area covered by the licence in accordance with the current *Forest Information Manual*. Domtar coordinates these forest management activities through their Divisional Office located in White River and Regional Office located in Timmins.

The White River SFL is located within the Wawa District of the Northeast Region of the Ministry of Natural Resources (MNR). Figure 1. illustrates the location of the forest within the MNR Northeast Region.

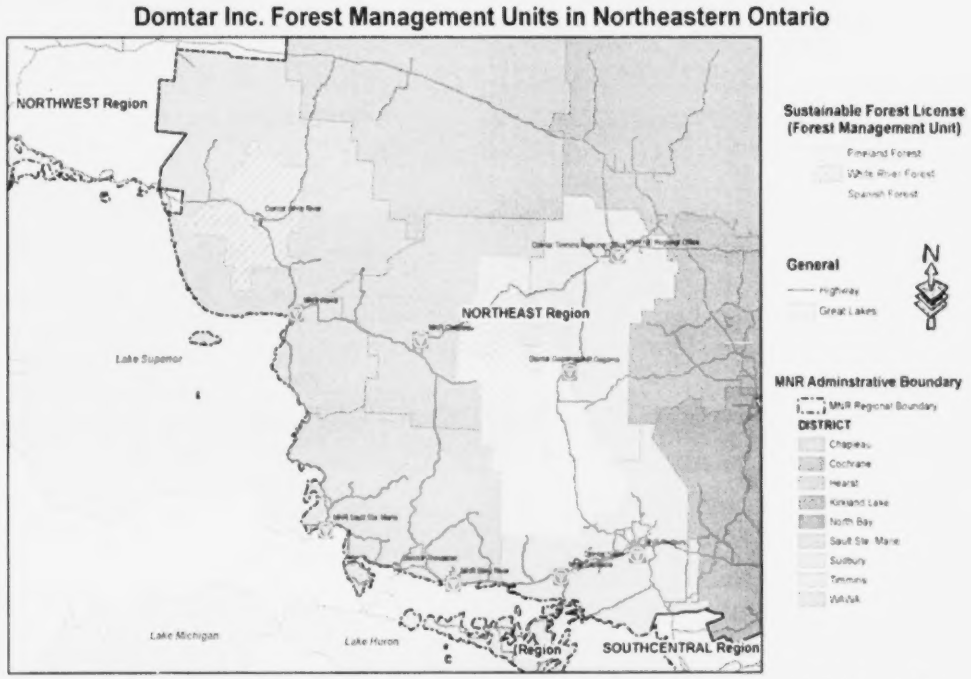


Figure 1. Location of the White River Forest within the Ministry of Natural Resources Northeast Region (Wawa District).

2.0 SUMMARY OF TOTAL AREA UNDER MANAGEMENT

Table 1 summarizes the total Crown forest area under management for the White River SFL during the 2003-2008 FMP period as well as the two previous five-year planning terms (1993-1998 and 1998-2003). The 2008-2018 FMP values are also included in the table to illustrate the landscapes direction into the future. The information is also graphically illustrated on the associated graph.

The Forest Resource Inventory used during the preparation of the 2003-2008 FMP was compiled in 1993 and is based upon aerial photography flown in 1989. The production of the inventory was a joint effort between the Ministry of Natural Resources and Domtar Inc. The 1993 planning inventory is the first digital inventory of the White River Forest. Both the 1998-2003 and 2003-2008 inventories are based upon the 1989 imagery, while the 1993-1998 TMP utilized the 1972 inventory data.

Table 1 identifies only minor changes to the land base over time. The area identified as total forested land in the 2003-2008 FMP represents 96% of the total forested land in the 1993-1998 TMP and 97% of the total forested land in the 1998-2003 FMP. These minor changes are likely due to the improved accuracy and changes (digital) in the inventory used during the preparation of both the 1998-2003 and the 2003-2008 FMP's.

The 2003-2008 FMP Table 1 did not identify "Barren and Scattered"(B&S) land in the inventory. The absence of data is because the 1993 inventory revealed that corrections were needed to the areas classified as B&S due to the excessive and unrealistic amount of area that was placed in this category. The flaw reflects the difficulty in photo interpreting the species composition of young stands as well as the difficulty in interpreting older stands that have naturally low stocking. These changes resulted in area previously identified as B&S being placed in free to grow stands.

The large area placed in the "Depleted / Natural Disturbance" portion of the table can be partially attributed to the re-classification of the B&S as well as to the 1999 Crocker Lake fire that burnt greater than 36,000 ha. Of this 36,000 ha, approx. 39% (14,197 ha) is located within the managed forest portion of the White River SFL. The remaining area is located within the Kwinkwaga Ground Moraine Uplands Conservation Reserve and is not included in the table as production forest.

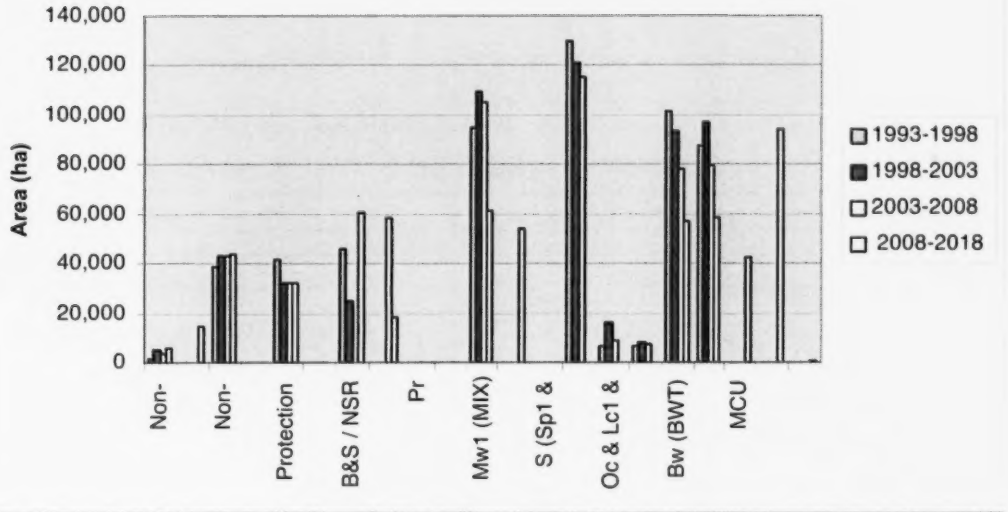
The Ministry of Natural Resources announced the first phase of the "Lands for Life" planning program in 1997. This planning process resulted in resource allocation and land use decisions/directions affecting forestry, natural heritage and resource-based tourism, as well as establishing conditions of use for most resource activities under MNR mandate. In March of 1999, the "Ontario Living Legacy" (OLL) was announced by the MNR and following several months of consultation the approved "land use direction" was announced in July 1999.

The additional protection areas include the creation of 4 Conservation reserves and 1 Provincial Park extension. The additional protected areas are as follows:

- C1518 Kakakiwibik Conservation Reserve
- C1509 Kwinkwaga Ground Moraine Uplands Conservation Reserve
- C1521 Strickland River Mixed Forest Wetland Conservation Reserve
- C1508 Widgeon Lake Moraine Conservation Reserve
- P1506 White Lake Park Addition

Table 1 - Summary of Total Area Under Management

		Area in hectares			
		Past Plans		Current	Future
Land Type	Plan Term	1993-1998	1998-2003	2003-2008	2008-2018
Non-Forested		1,781	5,458	3,361	6,103
Other Crown Land					14,908
Forested					
Non-productive		38,288	42,919	43,094	43,657
Productive					
Protection		41,706	32,121	32,321	31,802
Production Forest					
B&S / NSR		45,996	24,813	-	60,612
Depleted / Recent Disturbance		-	-	58,420	18,458
Forest Stands by Working Group or Provincial Forest Type					
Pr		18	-	-	-
Pj (Pj1 & Pj2& PJK)		94,725	109,059	104,832	61,388
Mw1 (MIX)		-	-		54,031
Mw2		-	-		
S (Sp1 & Sb1)		129,431	120,982	114,917	
Bf (Sf1)		6,606	15,742	8,471	
Oc & Lc1 & Ce		6,281	8,128	7,486	
Po (POP)		101,036	93,329	78,191	56,725
Bw (BWT)		87,833	96,844	79,488	58,289
MCL					42,603
MCU					93,850
Oh (Lh1 & TOL)		9	59	225	453
Total Production Forest		471,935	468,956	452,029	446,408
Total Forested Land		551,929	543,996	527,444	521,867



Source: 1993-1998 TMP: Table 4.8.2
1998-2003 FMP: FMP Table 1 and FMP Table 2
2003-2008 FMP: FMP Table 1, FMP Table 2 and FMP Table 3
2008-2018 FMP: FMP Table 1 and FMP Table 2 (for illustrational purposes only)

3.0 DESCRIPTION OF FOREST UNITS

Table 2 defines the forest units used during the forest management planning process for the three FMP terms that are being compared in this report. Table 2 is broken down into three separate tables (one for each planning term). Forest units are aggregations of forest stands that normally have a similar species composition; develop in a similar manner; and are managed under the same silvicultural system (OMNR, 1996).

Prior to the 2003-2008 FMP, locally developed forest units were used in plan development. These forest units were felt to best represent forest conditions at the time. During the planning of the 2003-2008 FMP, it was decided to utilize the MNR Northeast Standard Forest Units. The practice of using the standard forest units was continued with development of the current FMP (2008 to 2018). The standard forest units were developed to allow forest planners/managers throughout the Northeast Region to work with a common set of forest cover descriptions that were consistent for a number of reasons. These reasons are as follows (Section 2.3.4, White River 2003-2008 Forest Management Plan):

- To allow forest planning across the region to use a consistent description of forest cover.
- To ensure a close match of forest units to ecosites.
- To allow science, planning and industry to develop a common set of parameters for modelling such as:
    - Yield curves

        - Post-disturbance succession rules
        - Maintenance of biodiversity
    - To ensure all forest management plans maintain a consistent base set of principles for their forest units such as:
        - Remove rare and unique FU's first
        - Pure FU's at 70%+, mixed FU's at 40-60%
        - Separate conifer into rich (spruce/fir) versus poor (spruce/pine) communities
        - Separate upland mixedwoods into rich (ES 6) versus poor (ES3) communities
    - To create a direct relationship between units of forest management and units of habitat.
    - To allow for a consistent "roll-up" of forest cover descriptions to higher planning levels.
    - To allow for a simple assignment of higher-order targets in each FMP.

The standard query language (SQL) used in the 2003-2008 FMP was created in SFMMtool and was the best attempt to build a region wide set of forest unit parameters. The Northeast Region SQL was modified slightly for use on the White River forest to allow for the Domtar site type '1'. Domtar site type '1' is a description of lowland spruce and is based on forest species, soil type, terrain and operability. These modifications can be found under the "FRI Parameters and Criteria" heading for forest unit SB1 in Table 2a.

1

Table 2a - DESCRIPTION OF FOREST UNITS (FMP-8) 2003-2008

Forest Unit		Forest	Main	Site	Silvicultural	FRI Parameters	Additional
Code	Name	Type	Working Group	Type(s)	System	& Criteria	Information
LH1	Lowland Hardwood	Lowland Hwrd	Maple	10, 15	Clearcut	LH>=0.3	
BOG	Bog	Sb Bog	Black Spruce	14	Clearcut	Sb+La>=0.7 and Pw =0 and Sc=4	
SB1	Lowland Spruce	Sb Lowland	Black Spruce	8,11	Clearcut	udf1=1 and Sb>=0.8and Mh+Uh+Pr=0 and Pw+Pj<=0.1	
PJ1	Jack Pine	Jack Pine	Jack Pine	2	Clearcut	Pj>=0.7 and Po+Bw+Mh+Uh+Lh<=0.2	
LC1	Lowland Conifer	Sb / Ce / La	Black Spruce	12, 13r, 13p	Clearcut	udf1=1 and Ce+La+Sb>=0.8 and Mh+Uh+Pr=0 and Pw+Pj<=0.1	
PJ2	Mixed Jack Pine	Pj / Sb	Jack Pine	4	Clearcut	Pj+Sb+pr>=0.5 and Pj+Sb+Bf+Sw+He+Pw+Ce+La>=0.7 and Bf+Sw+He+Pw+Ce+La<=0.2 and Pj>=Sb	
SP1	Upland Spruce	Sb / Pj	Black Spruce	5f, 5m	Clearcut	Sb+Sw+Bf+Ce+La+Pw+Pr+He>=0.7 ans Bf+Ce+Pw+La+Sw+He<=0.2 or Pj>=0.3	
SF1	Spruce / Fir Upland	Sp / Bf / Ce	Black Spruce	9r	Clearcut	udf1>1 and Sb+Sw+Bf+Ce+La+Pw+Pj+Pr+He>=0.7	
PO1	Poplar	Poplar	Poplar	10, 7e, 6m, 6c, 7f, 7m	Clearcut	Po+Bw+Mh+Uh+Lh>=0.7 and Po>=0.5	
BW1	White Birch	White Birch	White Birch	3	Clearcut	Po+Bw+Mh+Uh+Lh>=0.7 and Po>=0.7	
MW1	Mixedwood 1	Pj / Bw / Po	Mixed	3	Clearcut	Pj+Pr>=0.2	
MW2	Mixedwood 2	Sb / Po	Mixed	6f, 6m, 10, 6e, 7f	Clearcut	Remainder	

Source: FMPM Table FMP-8

Table 2b - DESCRIPTION OF FOREST UNITS (FMP-8) 1998-2003

Forest Unit		Forest	Working	Site	Silvicultural	FRI Parameters	Additional
Code	Name	Type	Group	Type(s)	System	& Criteria	Information
1	Spruce - Sp1	Conifer	Spruce	ES12,14,17,20,22,25,26,27,31,32,35	Clearcut	Sb>0.5 ; Po,bw,Ab,Ms<0.3; Pj,Sw,Bf,Po,Bw,Ab,Ms>0.0	Allsite class = >0.3 stocking
3	Mixed Spruce - Sp2	Conifer mixedwood	Spruce	ES14,17,20,22,25,26,27,31,33	Clearcut	Sb and/or Sw>0.5; Po, Bw,Ab,Ms>0.2	Allsite class = >0.3 stocking
2	Lowland Spruce - Sp3	Conifer	Spruce	ES31,34,36	Clearcut	Sb=1; Pj,Sw,Bf,Po,Bw,Ab,Ms=0.0	Allsite class = >0.3 stocking
4	Jack Pine - Pj1	Conifer	Jack Pine	ES12,14,26,	Clearcut	Pj>0.5; Po,Bw,Ab,Ms<0.3	Allsite class = >0.3 stocking
5	Mixed Jack Pine - Pj2	Conifer mixedwood	Jack Pine	ES14,20	Clearcut	Pj>0.5; Po,Bw,Ab,Ms<0.2	Allsite class = >0.3 stocking
6	balsam Fir - Bf1	Conifer	Balsam Fir	ES17,27	Clearcut	Bf>0.5	Allsite class = >0.3 stocking
8	Other Conifer - Oc1	Conifer	Larch, Cedar	ES37	Clearcut	ce and/or La>0.5	Allsite class = >0.3 stocking
10	Poplar - Po1	Intolerant hrwd	Poplar	ES19,23,28,29,33	Clearcut	Po>0.5; Sb,Sw,Pj,Bf<0.3	Allsite class = >0.3 stocking
11	Mixed Poplar - Po2	Intolerant Hrwd mixedwood	Poplar	ES16,19,23,28,29,33	Clearcut	Po>0.5; Sb,Sw,Pj,Bf<0.2	Allsite class = >0.3 stocking
13	White Birch - Bw1	Intolerant hrwd	White Birch	V4	Clearcut	Bw>0.5; Sb,Sw,Pj,Bf<0.3	Allsite class = >0.3 stocking
14	Mixed White Birch - Bw2	Intolerant Hrwd mixedwood	White Birch	ES16,19,23,28,29,33	Clearcut	Bw>0.5; Sb,Sw,Pj,Bf<0.2	Allsite class = >0.3 stocking
31	Other Hrwd - Oh1	Intolerant Hrwd	Black ash, Red Maple	ES30,38	Clearcut	Ab and/or Ms>0.5	Allsite class = >0.3 stocking

Source: FMPM FMP-8

1

Table 2c - DESCRIPTION OF FOREST UNITS (FMP-8) 1993-1998

Forest Unit		Forest	Proposed Main	FEC Veg	FRI	FRI Parameters	Additional
Code	Name	Type	Working Group	Type(s)	Parameters	& Criteria	Information
N/A	Spruce and other Conifer	N/A	Sp, Oc	V23,34,35,36,37,21, 22,23	N/A	Clearcut, Modified cut in alternate strips or blocks or group seed tree, Careful logging around advanced growth	
	Spruce	N/A	Sp, Pj, Po	V24,25,32,33,15,16,19,20,30	N/A	Clearcut, partial clearcut, modified cut in alternate strips, careful logging around advanced growth	
	Jack Pine	N/A	Pj, Sp, Po	V17,18,31,28,30,29,32,30	N/A	Clearcut, partial clearcut, modified cut in alternate strips	
	Poplar, White Birch	N/A	Po, bw, Pj, Sp	V1,4,5,6,7,8,9,10,11	N/A	Clearcut or partial clearcut	
	Balsam Fir	N/A	Pj, Sp, Po	V25,16,24,14	N/A	Clearcut or partial clearcut, Tramp and burn or partial cut and tramp and burn	

Source: TMPM Table 4.11

2

4.0 SUMMARY OF PLANNED AND ACTUAL HARVEST VOLUMES

Table 3 identifies the planned harvest volumes (by species) and the associated actual harvest volumes for the FMP periods. For illustrational purposes, the 2008-2013 FMP planned volumes are also included in the table. The volumes for each planning period have been taken from the Report on Past Forest Operations (RPFO) for the 1993-1998 and 1998-2003 FMP's and the 2006/07 Annual Report for the 2003-2008 period (refer to section 1). The volumes identified in Table 3 have been annualized (ie. total volume / 5 operating years) to reflect the average annual volume utilized from the forest.

Three mills are the primary receivers of fibre from the White River Forest. A list of the primary receiving facilities is as follows:

- Domtar Inc., White River Sawmill
- Weyerhaeuser Company Limited, OSB Mill
- Columbia Forest Products, Hearst Veneer Mill (Columbia historically utilized White River wood for both their facilities in Hearst and Nipigon, but has since sold the Nipigon operation and all veneer products are directed to the Hearst operation).

Planned and actual annual harvest levels for the previous 3 planning periods is summarized in the table below:

FMP Period	Planned Harvest Volume (M3)	Actual harvest Volumes (M3)	Planned vs Actual (%)
1993-1998	670,517	438,673	65
1998-2003	689,522	520,462	75
2003-2008	657,618	288,959	44

The previous plans (1993-1998 and 1998-2003) achieved 65% and 75% of the planned annual harvest volumes during the planning period. The reduced harvested volume can be attributed to the minimal hardwood harvest during those time periods. The actual hardwood harvest accounted for 35% of planned (1993-1998) and 46% (1998-2003). These shortfalls can also be attributed to inaccurate yield curves, identifying more volume/ha than actual (refer to section 2.3.2.4.1.2 of the 2003-2008 White River FMP). The hardwood yield curves have since been adjusted (in the 2008-2018 FMP) to more closely reflect the actual volumes/ha available on the landbase.

During the 1998-2003 FMP, hardwood utilization increased with construction of the Weyerhaeuser OSB mill in Limer (east of Wawa).

During the 2003-2008 FMP period, 44% of the planned harvest volume was utilized. Of this shortfall, 59% of the SPF (pine, spruce and fir) and 21% of the hardwood (Po, Bw) was utilized. This shortfall is a reflection of the previously discussed market conditions and mill shutdowns.

Although the table reflects the full 5-year utilization, if the table was adjusted to reflect that harvesting occurred for only 3 years of the FMP it would indicate that 96% (376,940 m3) of the SPF and 34% (89,090 m3) of the hardwood was harvested on an annual basis.

Table 3 - Summary of Planned & Actual Harvest Volumes

Average Planned Annual Harvest Volumes

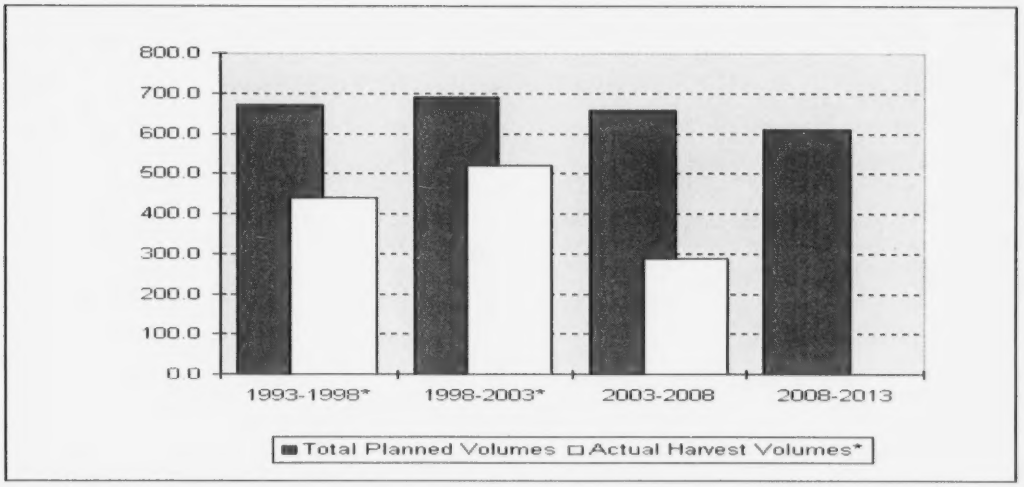
Volumes are Annualized for the indicated 5 year period

	Volume in '000's cubic metres			
	Past Plans		Current	Future
Species	1993-1998	1998-2003	2003-2008	2008-2013
Pj	246,917	251,612	177,988	245,694
Sp	202,296	148,460	209,610	122,919
Bf	-		7,023	7,279
LC	-	-	2,619	9,004
Po	220,404	239,993	195,868	172,948
Bw	900	49,457	64,510	51,119
Ms/Oh	-	-	-	-
Total Planned Volumes	670,517	689,522	657,618	608,963

Actual Harvest Volumes

Volumes are Annualized for the indicated 5 year period

	Volume in '000's cubic metres			
	Past Plans		Current	Future
Species	1993-1998	1998-2003	2003-2008	2008-2013
Pj	190,739	233,505	116,495	N/A
Sp	158,752	144,154	107,792	N/A
Bf	12,860	10,807	9,416	N/A
OC	-	20	20	N/A
Po	76,114	128,609	52,990	N/A
Bw	208	3,367	2,246	N/A
Ms/Oh	-	-	-	N/A
Total Actual Volumes	438,673	520,462	288,959	N/A



Source:

Planned: 1993-1998 - TMPM Table 4.18.1,
1998-2003 - 1996 FMPM Table FMP-21
2003-2008 - 1996 FMPM Table FMP-21
2008-2013 - 2004 FMPM FMP-17 (for illustrational purposes only)

Actual: 1993-1998 - 1996 FMPM RPFO-4
1998-2003 - 1996 FMPM RPFO-4
2003-2008 - 2006/07 AR Table 4

5.0 SUMMARY OF PLANNED AND ACTUAL DEPLETION AREA

Table 4 and the associated graph is a summary of the planned harvest area (ha) by the actual depletion area for the three planning terms identified in this report (for illustrational purposes, the 2008 FMP planned annual depletion area is included). The area identified in the report has been annualized (ie. total depletion area / 5). The amount of production forest planned for depletion over the five-year term of the FMP's has remained stable throughout the three planning terms. The percentage of production forest planned for depletion is as follows:

FMP Period	Productive Forest Area (ha)	Planned Depletion Area (ha)	Planned Depletion Percentage (%)
1993-1998	471,935	4,768	1.01
1998-2003	468,749	4,755	1.01
2003-2008	484,350	5,016	1.04
2008-2018	478,210	5,102	1.07

During the 1993-1998 FMP, approximately 73% of the annual planned depletion area was harvested (including 9 ha of natural depletion). This area depletion shortfall can be attributed primarily to the weak market conditions for hardwood species and the late

start-up of the Weyerhaeuser OSB Mill. The hardwood area depleted was 64% of the area planned for depletion throughout the term of the FMP.

The 1998-2003 actual depletion area exceeds the planned depletion area by 204%. This large depletion area is a direct result of the large (36,000 ha) Crocker Lake fire that occurred in May of 1999. If the area naturally depleted is removed from the equation, the actual harvest depletion area accounts for 88% of the planned harvest area. The area identified as SPF has been depleted at 91% of planned, while the hardwood forest units have been depleted at 84% of planned.

The start-up of the Weyerhaeuser OSB mill in Wawa during the 1998-2003 FMP term attributed to the increased utilization of hardwood (was an attributing factor to the reduced hardwood utilization in the two previous plans). The RPFO for the 1998-2003 FMP also indicates that 9% of the planned harvest area was composed of bypass (likely due to operational constraints). This bypass area when added to the depletion area increased the actual depletion area to 97% of planned.

The area identified as depleted for the 2003-2008 FMP is 58% of the planned area. As previously described, operations were active for ~3 years of the 2003-2008 FMP and if the actual depletion area was adjusted to reflect the loss of productive time, the actual depletion area would account for 96% of planned.

The adjusted depletion area indicates that 103% of the planned SPF area was depleted and 85% of the planned hardwood area was depleted on an annual basis for the 3 years of active operation. As mentioned previously in this report, an estimated 323 ha of hardwood depletion area is not included in this report (the Pic River Development Corp. FRL). For informational purposes only, if you include this hardwood area to the actual depletion area it would increase the hardwood depletion area to 114% of planned.

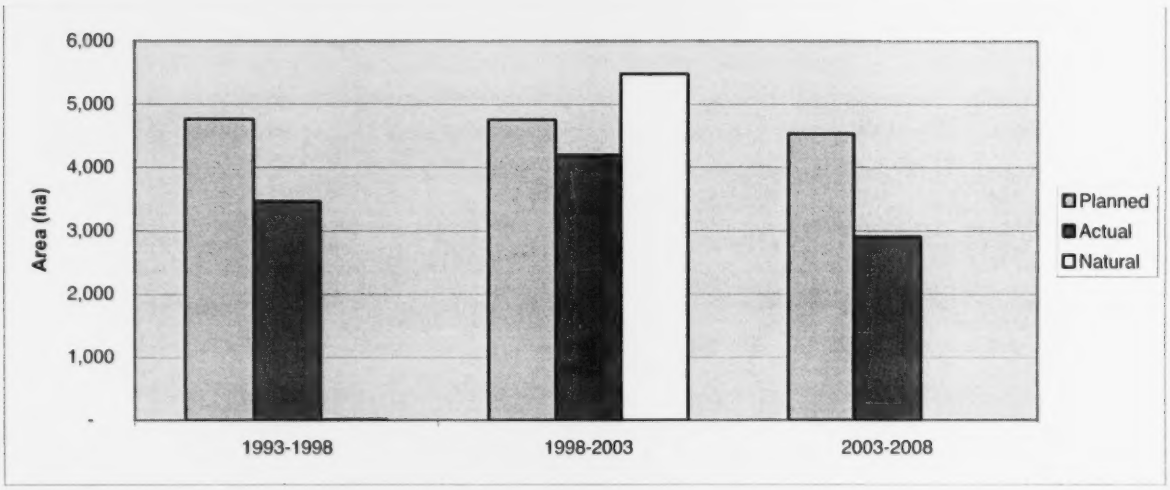
Table 4 - Summary of Planned and Actual Depletion Area

Past and Current Plans

Area is Annualized for the indicated 5 year period

Planned Annual Harvest Area					Actual Depletion Area					
	Area in hectares				*Area in hectares*					
	Past Plans		Current	Future	Past Plans				Current	
Plan Term	1993-1998	1998-2003	2003-2008	2008-2013	1993-1998		1998-2003		2003-2008	
					Harvest	Natural	Harvest	Natural	Harvest	Natural
Pj	1,617	1,919	1,175	1,513	1,199		1,827	761	797	
Sp	1,228	975	954	279	1,027		806	2,561	570	
Bf	1	9			16	9	18	23		
Lc	3	10	50	69	3		7	151	25	
Po	1,533	1,676	1,433	1,073	960		1,372	803	818	
Bw	386	166	447	787	261		169	1,183	142	
MW1			152	234					76	
MW2			156	634					95	
Sb1			538	330					314	
Sf1			111	183					63	
Total Area:	4,768	4,755	5,016	5,102	3,466	9	4,199	5,482	2,900	-

Planned vs. Actual Harvest Area



Source: Planned: TMP Table 4.15, 1996 FMPM Table FMP-18
Actual and Natural Area: 1996 FMPM Table RPFO-1 and Annual Reports; 2004 FMPM AR-1 and AR-6
Future: 2004 FMPM Table FMP-15 (for illustrational purposes only)

6.0 Summary of Managed Productive Forest by Forest Unit

The amounts of productive forest managed throughout the three planning terms (2003-2008, 1998-2003 and 1993-1998) are illustrated in Table 5.

The task of comparing the differences between forest units is a difficult one as the forest unit (FU) descriptions have changed throughout time and the table reflects data from two different forest resource inventories.

In order to best compare the information, the following table was created with the FU's from the two previous planning terms altered to reflect (as best as possible) the FU descriptions in the 2003-2008 FMP.

The FU's have been altered as follows:

- The Jack Pine for all plans is condensed into one "Pj" FU.
- The Spruce working groups have been condensed into one "Sp" FU.
- The Poplar from the 1993-1998 and 1998-2003 FMP's have been placed into one Po category.
- The White Birch from the 1993-1998 and 1998-2003 FMP's have been placed into one Bw category.
- The Oc FU from the 1993-1998 and 1998-2003 plan has been assigned the FU "Lc" to allow for the comparison of the lowland conifer (Ce, La) sites.
- All other hardwood sites (Ms, Ab) for the three terms have been assigned the classification of "Oh".
- The mixed wood sites (Mw1 and Mw2) identified in the 2003-2008 FMP combined together and are "stand alone". The comparison of this working group will occur in the text of this section.

Working Group	FMP Term Area (ha) of Productive Forest			% Change	% Change
Forest Unit	1993-1998	1998-2003	2003-2008	1993 to 2003	1998 to 2003
Pj	94,725	118,978	122,111	129%	103%
Sp	129,431	129,011	96,680	75%	75%
Bf	6,606	15,787	19,252	291%	122%
Po	101,036	97,997	73,327	73%	75%
Bw	87,833	98,803	63,607	72%	64%
Lc	6,281	8,335	15,095	240%	181%
Oh	9	59	433	4811%	734%
Mixedwood	-	-	59,573	N/A	N/A
Total	**425,921**	**468,970**	**450,077**		

Source – FMP-9

As the above table indicates, the majority of the forest units have remained relatively stable particularly between the comparison of the 2003-2008 and 1998-2003 FMP period.

The mixed wood classification in the 2003 –2008 FMP would account for the loss of productive forest for the Sp, Po and Bw forest units during the 2003 FMP period. If the 59,573 ha of mixed wood was divided into three equal amounts and added to the aforementioned forest units, the percentage change between the 1998 and 2003 FMP's would be 90%, 96% and 85% of the Sp, Po and Bw area respectively.

The major change between the 1998-2003 and 2003-2008 FMP productive area by forest unit would be the increase (181%) of lowland conifer (Lc) sites. This increase is likely attributed to inventory changes and accuracy over time. It is possible that sites previously typed as Sp were re-classified to lowland conifer conditions. This change may be due to advancements in inventory data and technology during that time period.

The 2003-2008 FMP, indicates that one of the objectives of the plan was to *"maintain forest diversity within the bounds of natural variation"*. This objective is achieved through maintaining the forest unit distribution with +-25% of the natural forest composition. As the above table illustrates, the forest diversity has been maintained within that range except for the Lc and Oh categories (the mixed wood FU is explained above). The increase to both FU's can be attributed to the averaging of the 1972 and 1989 FRI to create the 2003 FRI planning inventory (refer to section 2.3.3.1.1 of the 2003-2008 FMP). The average natural amount of Oh (Lh) and Lc that would be located on the landbase is as 288 ha and 12,268 ha respectively. If these areas were then compared to the 2003-2008 FMP productive forest areas, the percentages would equate to 150% for OH and 123% for Lc. The Lc forest unit would be within the +-25% bounds of natural variation, while the Oh forest unit is moving toward target achievement.

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

2003-2008 FMP

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
LH1	FTG - 20							
	21-40							
	41-60							
	61-80	118.00				Clearcut	418.00	24,035.00
	81-100							
	101-120					Clearcut	15.00	1,530.00
	121-140							
	141-160							
	161-180							
	181-200							
	201+							
Forest Unit Subtotal		118.00	-	-	-	-	433.00	25,565.00
BOG	FTG - 20							
	21-40							
	41-60							
	61-80							
	81-100							
	101-120							
	121-140							
	141-160							
	161-180							
	181-200							
	201+							
Forest Unit Subtotal		-	-	-	-	-	-	-

2003-2008 FMP

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Sb1	FTG - 20					Clearcut	8,362.00	
	21-40					Clearcut	700.00	
	41-60					Clearcut	529.00	793.50
	61-80					Clearcut	2,049.00	66,592.50
	81-100					Clearcut	2,370.40	192,002.40
	101-120					Clearcut	4,890.70	467,061.85
	121-140					Clearcut	6,445.00	576,827.50
	141-160					Clearcut	8,630.00	694,715.00
	161-180					Clearcut	3,311.00	231,770.00
	181-200					Clearcut	26.00	1,508.00
	201+					Clearcut	5.00	159.17
Forest Unit Subtotal		-	-	-	-	-	37,318.10	2,231,429.92
Pj1	FTG - 20	122.00				Clearcut	35,005.00	17,502.50
	21-40	40.00				Clearcut	4,544.00	138,592.00
	41-60	156.00				Clearcut	5,135.90	444,255.35
	61-80	775.00				Clearcut	20,288.50	2,728,803.25
	81-100	271.00				Clearcut	11,760.00	2,005,080.00
	101-120	16.00				Clearcut	8,443.00	1,397,316.50
	121-140	21.00				Clearcut	1,869.00	142,978.50
	141-160	7.00				Clearcut	278.00	5,004.00
	161-180					Clearcut	12.00	150.00
	181-200							
	201+							
Forest Unit Subtotal		1,408.00	-	-	-	-	87,335.40	6,879,682.10

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Lc1	FTG - 20	2.00				Clearcut	976.00	
	21-40					Clearcut	649.00	
	41-60					Clearcut	1,622.00	3,244.00
	61-80					Clearcut	418.00	10,032.00
	81-100	11.00				Clearcut	1,402.00	84,821.00
	101-120	45.00				Clearcut	2,923.00	217,763.50
	121-140	88.00				Clearcut	3,563.00	249,410.00
	141-160	15.00				Clearcut	2,610.00	161,820.00
	161-180	48.00				Clearcut	876.00	46,866.00
	181-200					Clearcut	48.00	2,232.00
	201+					Clearcut	8.00	249.33
Forest Unit Subtotal		209.00	-	-	-	-	15,095.00	776,437.83
Pj2	FTG - 20	312.00				Clearcut	7,139.00	3,569.50
	21-40	17.00				Clearcut	3,422.00	80,417.00
	41-60	156.00				Clearcut	1,136.10	74,414.55
	61-80	667.00				Clearcut	8,889.00	1,040,013.00
	81-100	470.00				Clearcut	6,043.00	915,514.50
	101-120	400.00				Clearcut	5,369.00	802,665.50
	121-140					Clearcut	2,295.00	190,485.00
	141-160					Clearcut	390.00	15,210.00
	161-180					Clearcut	92.00	2,852.00
	181-200							
	201+							
Forest Unit Subtotal		2,022.00	-	-	-	-	34,775.10	3,125,141.05

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Sp1	FTG - 20	52.00				Clearcut	12,076.00	
	21-40					Clearcut	3,099.00	52,638.00
	41-60					Clearcut	2,790.00	161,820.00
	61-80					Clearcut	13,272.00	1,440,012.00
	81-100					Clearcut	10,620.00	1,486,800.00
	101-120	19.00				Clearcut	8,738.00	1,240,796.00
	121-140					Clearcut	5,198.30	584,808.75
	141-160					Clearcut	3,114.00	280,260.00
	161-180					Clearcut	399.00	26,611.50
	181-200					Clearcut	36.00	2,466.00
	201+	40.00				Clearcut	20.00	996.67
Forest Unit Subtotal		111.00	-	-	-	-	59,362.30	5,277,208.92
SF1	FTG - 20					Clearcut	1,225.00	
	21-40					Clearcut	339.00	6,102.00
	41-60	11.00				Clearcut	4,663.00	335,736.00
	61-80	14.00				Clearcut	6,954.10	806,675.60
	81-100	22.00				Clearcut	2,276.00	319,778.00
	101-120					Clearcut	1,942.00	273,822.00
	121-140					Clearcut	1,069.00	105,831.00
	141-160					Clearcut	746.00	54,831.00
	161-180	1.00				Clearcut	38.00	2,451.00
	181-200							
	201+							
Forest Unit Subtotal		48.00	-	-	-	-	19,252.10	1,905,226.60

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Po1	FTG - 20	190.00				Clearcut	13,380.00	
	21-40	43.00				Clearcut	2,250.00	70,875.00
	41-60	250.00				Clearcut	3,186.00	339,309.00
	61-80	2,384.00				Clearcut	23,570.00	3,688,705.00
	81-100	1,246.00				Clearcut	17,316.00	3,073,590.00
	101-120	299.00				Clearcut	11,495.00	1,833,452.50
	121-140					Clearcut	3,811.00	219,132.50
	141-160					Clearcut	246.00	3,321.00
	161-180							
	181-200							
	201+					Clearcut	73.00	279.83
Forest Unit Subtotal		4,412.00	-	-	-	-	75,327.00	9,228,664.83
Bw1	FTG - 20	212.00				Clearcut	4,346.00	
	21-40	11.00				Clearcut	864.00	14,256.00
	41-60	2,708.90				Clearcut	11,679.40	759,161.00
	61-80	8,418.00				Clearcut	27,637.40	2,722,283.90
	81-100	1,237.00				Clearcut	9,471.00	1,103,371.50
	101-120	473.00				Clearcut	6,923.00	789,222.00
	121-140	169.00				Clearcut	2,600.00	182,000.00
	141-160					Clearcut	86.00	2,279.00
	161-180							
	181-200							
	201+							
Forest Unit Subtotal		13,228.90	-	-	-	-	63,606.80	5,572,573.40

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Mw1	FTG - 20	190.00				Clearcut	3,526.00	
	21-40	31.00				Clearcut	2,305.00	44,947.50
	41-60	295.00				Clearcut	1,303.00	86,649.50
	61-80	1,608.30				Clearcut	3,409.00	361,354.00
	81-100	424.00				Clearcut	3,037.00	403,921.00
	101-120	298.00				Clearcut	2,607.00	332,392.50
	121-140	15.00				Clearcut	961.00	59,101.50
	141-160					Clearcut	7.00	164.50
	161-180					Clearcut	2.00	31.00
	181-200							
	201+							
Forest Unit Subtotal		2,861.30	-	-	-	-	17,157.00	1,288,561.50
Mw2	FTG - 20	68.00				Clearcut	5,032.00	
	21-40	31.00				Clearcut	1,370.00	13,700.00
	41-60	623.00				Clearcut	9,947.00	363,065.50
	61-80	2,764.00				Clearcut	12,450.70	803,070.15
	81-100	617.00				Clearcut	5,049.00	461,983.50
	101-120	97.00				Clearcut	5,536.00	528,688.00
	121-140	64.00				Clearcut	2,569.00	165,700.50
	141-160					Clearcut	434.00	15,841.00
	161-180							
	181-200							
	201+					Clearcut	28.00	630.00
Forest Unit Subtotal		4,264.00	-	-	-	-	42,415.70	2,352,678.65
Total		28,682.20	-	-	-	-	452,077.50	38,663,169.80

Source: 1996 FMPM, FMP Table 9

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

1998-2003 FMP

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Pj1	B&S						8,935.00	
	1.-5						1,240.00	
	6.-10						3,709.00	
	11.-15						5,654.00	
	16-20						3,400.00	
	21-25						867.00	
	26-30						927.00	
	31-35	79.00					299.00	
	36-40	23.00					615.00	
	41-45						1,055.00	
	46-50						1,488.00	
	51-55						2,809.00	
	55-60	88.00					5,929.00	
	61-65	33.00					3,847.00	
	66-70	63.00					10,827.00	
	71-75	42.00					6,058.00	
	76-80	31.00					5,178.00	
	81-85	14.00					5,045.00	
	86-90						6,509.00	
	91-95	15.00					1,589.00	
	96-100						8,215.00	
	101-105						1,737.00	
	105-110						6,483.00	
	111-115						68.00	
	116-120						3,351.00	
	121-125						265.00	
	126-130						1,336.00	
	131-135						33.00	
	136-140	7.00					651.00	
	141-145						95.00	
	146-150						270.00	
	151-155							
	156-160						9.00	
	161-165							
	166-170							
	171-175							
	176-180							
	181+						3.00	
Forest Unit Subtotal		395.00	-	-	-	-	98,496.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Pj2	B&S						778.00	
	1.-5						755.00	
	6.-10						1,634.00	
	11.-15						1,980.00	
	16-20						666.00	
	21-25						562.00	
	26-30						245.00	
	31-35						44.00	
	36-40						138.00	
	41-45						249.00	
	46-50						146.00	
	51-55						41.00	
	55-60	22.00					630.00	
	61-65						276.00	
	66-70						800.00	
	71-75						642.00	
	76-80	16.00					416.00	
	81-85						577.00	
	86-90						831.00	
	91-95						111.00	
	96-100	30.00					855.00	
	101-105						57.00	
	105-110						552.00	
	111-115						24.00	
	116-120						409.00	
	121-125						32.00	
	126-130						263.00	
	131-135						83.00	
	136-140						40.00	
	141-145							
	146-150						58.00	
	151-155							
	156-160							
	161-165						30.00	
	166-170							
	171-175							
	176-180						8.00	
	181+							
Forest Unit Subtotal		68.00	-	-	-	-	13,932.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Pj4	B&S						175.00	
	1.-5							
	6.-10							
	11.-15						13.00	
	16-20							
	21-25							
	26-30							
	31-35							
	36-40						44.00	
	41-45						178.00	
	46-50						56.00	
	51-55	36.00					261.00	
	55-60	186.00					425.00	
	61-65	381.00					218.00	
	66-70	186.00					588.00	
	71-75	827.00					614.00	
	76-80	183.00					438.00	
	81-85	611.00					573.00	
	86-90	118.00					906.00	
	91-95	276.00					94.00	
	96-100	126.00					901.00	
	101-105	255.00					77.00	
	105-110	24.00					632.00	
	111-115	237.00						
	116-120						221.00	
	121-125	27.00						
	126-130						51.00	
	131-135							
	136-140						73.00	
	141-145							
	146-150							
	151-155							
	156-160						12.00	
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		3,473.00	-	-	-	-	6,550.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Sp1	B&S						5,287.00	
	1.-5						290.00	
	6.-10						1,460.00	
	11.-15						1,180.00	
	16-20						583.00	
	21-25						457.00	
	26-30						576.00	
	31-35						177.00	
	36-40						303.00	
	41-45						706.00	
	46-50						1,075.00	
	51-55						2,072.00	
	55-60						3,310.00	
	61-65	11.00					2,311.00	
	66-70						7,398.00	
	71-75						3,437.00	
	76-80						4,104.00	
	81-85	8.00					2,828.00	
	86-90						5,415.00	
	91-95						1,277.00	
	96-100						5,682.00	
	101-105						753.00	
	105-110						5,695.00	
	111-115	20.00					75.00	
	116-120						4,086.00	
	121-125						377.00	
	126-130						2,055.00	
	131-135						320.00	
	136-140						1,561.00	
	141-145						510.00	
	146-150						1,514.00	
	151-155						121.00	
	156-160						544.00	
	161-165							
	166-170						51.00	
	171-175							
	176-180							
	181+						71.00	
Forest Unit Subtotal		39.00	-	-	-	-	67,661.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Sp2	B&S						1,629.00	
	1.-5						351.00	
	6.-10						790.00	
	11.-15						628.00	
	16-20						144.00	
	21-25						77.00	
	26-30						276.00	
	31-35						113.00	
	36-40						440.00	
	41-45						842.00	
	46-50						1,163.00	
	51-55						812.00	
	55-60						1,940.00	
	61-65						1,023.00	
	66-70	13.00					2,613.00	
	71-75						892.00	
	76-80						889.00	
	81-85						1,046.00	
	86-90						1,404.00	
	91-95						201.00	
	96-100						1,320.00	
	101-105						327.00	
	105-110						1,054.00	
	111-115						101.00	
	116-120						891.00	
	121-125						95.00	
	126-130						339.00	
	131-135						29.00	
	136-140						283.00	
	141-145						16.00	
	146-150							
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+						28.00	
Forest Unit Subtotal		13.00	-	-	-	-	21,756.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Sp3	B&S						1,041.00	
	1.-5						214.00	
	6.-10						346.00	
	11.-15						118.00	
	16-20							
	21-25						87.00	
	26-30						244.00	
	31-35						47.00	
	36-40						10.00	
	41-45							
	46-50						72.00	
	51-55						27.00	
	56-60	10.00					441.00	
	61-65						319.00	
	66-70	57.00					1,134.00	
	71-75						474.00	
	76-80	13.00					623.00	
	81-85						291.00	
	86-90	33.00					1,457.00	
	91-95						142.00	
	96-100	14.00					1,679.00	
	101-105						92.00	
	105-110	107.00					3,370.00	
	111-115						44.00	
	116-120	111.00					3,590.00	
	121-125	150.00					33.00	
	126-130	491.00					3,702.00	
	131-135	423.00					535.00	
	136-140	162.00					4,123.00	
	141-145	84.00					1,877.00	
	146-150	349.00					4,944.00	
	151-155	226.00					404.00	
	156-160	758.00					4,274.00	
	161-165							
	166-170						29.00	
	171-175						32.00	
	176-180						17.00	
	181+						42.00	
Forest Unit Subtotal		2,988.00	-	-	-	-	35,874.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Sp4	B&S						73.00	
	1.-5							
	6.-10							
	11.-15							
	16-20							
	21-25							
	26-30							
	31-35							
	36-40						41.00	
	41-45						11.00	
	46-50						9.00	
	51-55						73.00	
	56-60						150.00	
	61-65						185.00	
	66-70						213.00	
	71-75						261.00	
	76-80						291.00	
	81-85						340.00	
	86-90						370.00	
	91-95							
	96-100						513.00	
	101-105						67.00	
	105-110						607.00	
	111-115	10.00						
	116-120						427.00	
	121-125						13.00	
	126-130	33.00					17.00	
	131-135							
	136-140						29.00	
	141-145							
	146-150							
	151-155							
	156-160						30.00	
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		43.00	-	-	-	-	3,720.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Bf1	B&S						45.00	
	1.-5						1,121.00	
	6.-10						2,688.00	
	11.-15						1,972.00	
	16-20						9.00	
	21-25							
	26-30						152.00	
	31-35						46.00	
	36-40						706.00	
	41-45						458.00	
	46-50	11.00					2,543.00	
	51-55						884.00	
	56-60	3.00					3,466.00	
	61-65	12.00					172.00	
	66-70						889.00	
	71-75						150.00	
	76-80						95.00	
	81-85						108.00	
	86-90						100.00	
	91-95						29.00	
	96-100							
	101-105							
	105-110							
	111-115						33.00	
	116-120							
	121-125							
	126-130							
	131-135							
	136-140							
	141-145							
	146-150							
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		26.00	-	-	-	-	15,666.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Bf4	B&S							
	1.-5							
	6.-10							
	11.-15							
	16-20							
	21-25							
	26-30							
	31-35							
	36-40							
	41-45							
	46-50							
	51-55							
	56-60						43.00	
	61-65							
	66-70						78.00	
	71-75							
	76-80							
	81-85							
	86-90							
	91-95							
	96-100							
	101-105							
	105-110							
	111-115							
	116-120							
	121-125							
	126-130							
	131-135							
	136-140							
	141-145							
	146-150							
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		-	-	-	-	-	121.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Other Conifer	B&S						207.00	
	1.-5							
	6.-10							
	11.-15							
	16-20							
	21-25							
	26-30						14.00	
	31-35							
	36-40						7.00	
	41-45							
	46-50						93.00	
	51-55						25.00	
	56-60						6.00	
	61-65						154.00	
	66-70	14.00					89.00	
	71-75	33.00					344.00	
	76-80	35.00					43.00	
	81-85						783.00	
	86-90						90.00	
	91-95						1,004.00	
	96-100	25.00					50.00	
	101-105						1,365.00	
	105-110	298.00					126.00	
	111-115						1,217.00	
	116-120	203.00					78.00	
	121-125	108.00					1,132.00	
	126-130	195.00					95.00	
	131-135						503.00	
	136-140	22.00					194.00	
	141-145						341.00	
	146-150						37.00	
	151-155						268.00	
	156-160	83.00						
	161-165							
	166-170						22.00	
	171-175	19.00					16.00	
	176-180						32.00	
	181+							
Forest Unit Subtotal		1,035.00	-	-	-	-	8,335.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Po1	B&S						1,614.00	
	1.-5						2,174.00	
	6.-10						3,596.00	
	11.-15						2,256.00	
	16-20						199.00	
	21-25						86.00	
	26-30	43.00					419.00	
	31-35						80.00	
	36-40	91.00					594.00	
	41-45						1,147.00	
	46-50	16.00					836.00	
	51-55						814.00	
	56-60	288.00					5,922.00	
	61-65	82.00					4,888.00	
	66-70	452.00					7,108.00	
	71-75	236.00					4,828.00	
	76-80	120.00					4,332.00	
	81-85	144.00					4,982.00	
	86-90	169.00					7,857.00	
	91-95	67.00					2,412.00	
	96-100	63.00					6,627.00	
	101-105						1,214.00	
	105-110	41.00					6,516.00	
	111-115						52.00	
	116-120						2,268.00	
	121-125						100.00	
	126-130						827.00	
	131-135						25.00	
	136-140						166.00	
	141-145						82.00	
	146-150						32.00	
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		1,812.00	-	-	-	-	74,053.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Po2	B&S						2,995.00	
	1.-5						537.00	
	6.-10						562.00	
	11.-15						918.00	
	16-20						393.00	
	21-25						712.00	
	26-30						76.00	
	31-35						177.00	
	36-40	36.00					702.00	
	41-45						543.00	
	46-50						360.00	
	51-55						220.00	
	56-60						749.00	
	61-65	28.00					545.00	
	66-70	192.00					1,350.00	
	71-75	15.00					1,395.00	
	76-80	20.00					1,011.00	
	81-85	134.00					915.00	
	86-90	47.00					1,399.00	
	91-95						85.00	
	96-100	22.00					1,749.00	
	101-105						247.00	
	105-110						2,116.00	
	111-115						104.00	
	116-120						1,260.00	
	121-125							
	126-130						1,099.00	
	131-135						144.00	
	136-140						236.00	
	141-145							
	146-150						7.00	
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		494.00	-	-	-	-	22,606.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Po2	B&S						57.00	
	1.-5							
	6.-10							
	11.-15							
	16-20							
	21-25							
	26-30							
	31-35						35.00	
	36-40							
	41-45						65.00	
	46-50	54.00						
	51-55	74.00						
	56-60	240.00					32.00	
	61-65	234.00					70.00	
	66-70	687.00						
	71-75	276.00					258.00	
	76-80	433.00					5.00	
	81-85	340.00						
	86-90	179.00					346.00	
	91-95	49.00					21.00	
	96-100	304.00					155.00	
	101-105	58.00						
	105-110	77.00					209.00	
	111-115							
	116-120	35.00					70.00	
	121-125							
	126-130						15.00	
	131-135							
	136-140							
	141-145							
	146-150							
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		3,040.00	-	-	-	-	1,338.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Bw1	B&S						1,056.00	
	1.-5						1,108.00	
	6.-10						2,153.00	
	11.-15						1,792.00	
	16-20							
	21-25	3.00						
	26-30						310.00	
	31-35						15.00	
	36-40						740.00	
	41-45						1,649.00	
	46-50	94.00					4,131.00	
	51-55	447.00					2,540.00	
	56-60	423.00					7,802.00	
	61-65	130.00					2,475.00	
	66-70	1,093.00					8,193.00	
	71-75	225.00					2,266.00	
	76-80	81.00					2,001.00	
	81-85						2,771.00	
	86-90	32.00					2,757.00	
	91-95						285.00	
	96-100						2,124.00	
	101-105						239.00	
	105-110						817.00	
	111-115						25.00	
	116-120	12.00					437.00	
	121-125						37.00	
	126-130	41.00					24.00	
	131-135						19.00	
	136-140							
	141-145						47.00	
	146-150						24.00	
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		2,581.00	-	-	-	-	47,837.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Bw2	B&S						763.00	
	1.-5						852.00	
	6.-10						1,938.00	
	11.-15	31.00					684.00	
	16-20						56.00	
	21-25							
	26-30						413.00	
	31-35						175.00	
	36-40	46.00					1,144.00	
	41-45	373.00					2,366.00	
	46-50	420.00					5,663.00	
	51-55	1,442.00					2,764.00	
	56-60	142.00					8,901.00	
	61-65	1,346.00					811.00	
	66-70	95.00					5,280.00	
	71-75	167.00					1,907.00	
	76-80	44.00					1,742.00	
	81-85	183.00					1,482.00	
	86-90	29.00					2,228.00	
	91-95	37.00					307.00	
	96-100	49.00					2,431.00	
	101-105	43.00					498.00	
	105-110						3,019.00	
	111-115	108.00					96.00	
	116-120						2,048.00	
	121-125						14.00	
	126-130						834.00	
	131-135							
	136-140							
	141-145							
	146-150							
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		4,555.00	-	-	-	-	48,416.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Bw4	B&S						140.00	
	1.-5							
	6.-10							
	11.-15							
	16-20							
	21-25							
	26-30							
	31-35	36.00					108.00	
	36-40	38.00					204.00	
	41-45	611.00					308.00	
	46-50	1,341.00					109.00	
	51-55	3,300.00					643.00	
	56-60	308.00					62.00	
	61-65	3,550.00					168.00	
	66-70	618.00						
	71-75	572.00					83.00	
	76-80	83.00					256.00	
	81-85	487.00					122.00	
	86-90	46.00						
	91-95	371.00					233.00	
	96-100						45.00	
	101-105	198.00					38.00	
	105-110							
	111-115						31.00	
	116-120							
	121-125							
	126-130							
	131-135							
	136-140							
	141-145							
	146-150							
	151-155							
	156-160							
	161-165							
	166-170							
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		11,559.00	-	-	-	-	2,550.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Other Hardwoo	B&S							
	1.-5							
	6.-10							
	11.-15							
	16-20							
	21-25							
	26-30							
	31-35							
	36-40							
	41-45							
	46-50							
	51-55							
	56-60							
	61-65							
	66-70						44.00	
	71-75							
	76-80							
	81-85							
	86-90							
	91-95							
	96-100							
	101-105							
	105-110						15.00	
	111-115							
	116-120							
	121-125							
	126-130							
	131-135							
	136-140							
	141-145							
	146-150							
	151-155							
	156-160							
	161-165							
	166-170			-				
	171-175							
	176-180							
	181+							
Forest Unit Subtotal		-	-	-	-	-	59.00	-
Total		32,121.00	-	-	-	-	468,970.00	-

Source: 1996 FMPM FMP Table 9

Table 5 - SUMMARY OF MANAGED PRODUCTIVE FOREST BY FOREST UNIT

1993-1998 FMP

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Pj	B&S	13,874.00						
	6.-10						2,123.00	
	11.-15						2,539.00	
	16-20						979.00	
	21-25						839.00	
	26-30						170.00	
	31-35						435.00	
	36-40						2,411.00	
	41-45						1,629.00	
	46-50						698.00	
	51-55						8,270.00	
	56-60						4,320.00	
	61-65						12,684.00	
	66-70						6,179.00	
	71-75						6,223.00	
	76-80						4,140.00	
	81-85						7,013.00	
	86-90						5,320.00	
	91-95						10,175.00	
	96-100						3,547.00	
	101-105						7,139.00	
	106-110						835.00	
	111-115						4,228.00	
	116-120						939.00	
	121-125						833.00	
	126-130							
	131-135						363.00	
	136+						694.00	
	All age class	15,036.00						
Forest Unit Subtotal		28,910.00	-	-	-	-	94,725.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Sp	B&S	21,008.00						
	6.-10						48.00	
	11.-15						96.00	
	16-20						439.00	
	21-25						187.00	
	26-30						46.00	
	31-35						1,507.00	
	36-40						2,983.00	
	41-45						1,801.00	
	46-50						4,015.00	
	51-55						4,133.00	
	56-60						4,624.00	
	61-65						5,348.00	
	66-70						2,725.00	
	71-75						4,591.00	
	76-80						2,307.00	
	81-85						7,846.00	
	86-90						2,834.00	
	91-95						7,387.00	
	96-100						3,152.00	
	101-105						13,971.00	
	106-110						5,650.00	
	111-115						8,676.00	
	116-120						4,116.00	
	121-125						13,977.00	
	126-130						2,321.00	
	131-135						13,257.00	
	136+						11,394.00	
	All age class	4,447.00						
Forest Unit Subtotal		25,455.00	-	-	-	-	129,431.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Bf	B&S	248.00						
	6.-10						7.00	
	11.-15						21.00	
	16-20						29.00	
	21-25						130.00	
	26-30						337.00	
	31-35						1,419.00	
	36-40						1,920.00	
	41-45						1,304.00	
	46-50						288.00	
	51-55						465.00	
	56-60						29.00	
	61-65						12.00	
	66-70						283.00	
	71-75						51.00	
	76-80						83.00	
	81-85						108.00	
	86-90						97.00	
	91-95						15.00	
	96-100						8.00	
	101-105							
	106-110							
	111-115							
	116-120							
	121-125							
	126-130							
	131-135							
	136+							
	All age class	10.00						
Forest Unit Subtotal		258.00	-	-	-	-	6,606.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
OC	B&S	87.00						
	6.-10						29.00	
	11.-15						62.00	
	16-20						4.00	
	21-25						101.00	
	26-30						77.00	
	31-35						1,063.00	
	36-40						66.00	
	41-45						618.00	
	46-50						96.00	
	51-55						307.00	
	56-60						59.00	
	61-65						368.00	
	66-70						63.00	
	71-75						419.00	
	76-80						101.00	
	81-85						664.00	
	86-90						110.00	
	91-95						362.00	
	96-100						1,712.00	
	101-105							
	106-110							
	111-115							
	116-120							
	121-125							
	126-130							
	131-135							
	136+							
	All age class	820.00						
Forest Unit Subtotal		907.00	-	-	-	-	6,281.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
OH	B&S							
	6.-10							
	11.-15							
	16-20							
	21-25							
	26-30							
	31-35							
	36-40							
	41-45							
	46-50							
	51-55							
	56-60							
	61-65							
	66-70							
	71-75							
	76-80							
	81-85							
	86-90							
	91-95							
	96-100							
	101-105							
	106-110							
	111-115							
	116-120						9.00	
	121-125							
	126-130							
	131-135							
	136+							
	All age class	64.00						
Forest Unit Subtotal		64.00	-	-	-	-	9.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Bw	B&S	2,860.00						
	6.-10						2.00	
	11.-15						141.00	
	16-20						620.00	
	21-25						123.00	
	26-30						2,184.00	
	31-35						4,275.00	
	36-40						6,667.00	
	41-45						4,493.00	
	46-50						14,137.00	
	51-55						1,804.00	
	56-60						8,099.00	
	61-65						4,033.00	
	66-70						3,529.00	
	71-75						2,565.00	
	76-80						4,601.00	
	81-85						2,111.00	
	86-90						4,136.00	
	91-95						2,980.00	
	96-100						8,377.00	
	101-105						2,970.00	
	106-110						5,845.00	
	111-115						2,583.00	
	116-120						840.00	
	121-125						238.00	
	126-130						470.00	
	131-135							
	136+							
	All age class	13,983.00						
Forest Unit Subtotal		16,843.00	-	-	-	-	87,833.00	-

Forest Unit	Age Class	Protection Forest		Production Forest				
				Unavailable		Stage of Management	Available	
		(ha)	(m^3)	(ha)	(m^3)		(ha)	(m^3)
Po	B&S	7,919.00						
	6.-10						395.00	
	11.-15						70.00	
	16-20						376.00	
	21-25						232.00	
	26-30						1,730.00	
	31-35						1,506.00	
	36-40						1,252.00	
	41-45						2,065.00	
	46-50						7,045.00	
	51-55						1,538.00	
	56-60						10,145.00	
	61-65						6,046.00	
	66-70						8,449.00	
	71-75						3,403.00	
	76-80						11,867.00	
	81-85						4,188.00	
	86-90						12,428.00	
	91-95						7,615.00	
	96-100						8,277.00	
	101-105						2,022.00	
	106-110						7,235.00	
	111-115						1,626.00	
	116-120						1,271.00	
	121-125						142.00	
	126-130						113.00	
	131-135							
	136+							
	All age class	7,346.00						
Forest Unit Subtotal		15,265.00	-	-	-	-	101,036.00	-
Total		87,702.00	-	-	-	-	425,325.00	-

Source: UMFM Tables 4.9.2 and 4.9

7.0 Summary Report of Renewal, Tending and Protection Operations

Table 6 summarizes the planned vs. actual renewal, tending and protection operations that has occurred on the White River Forest throughout the 1993-1998, 1998-2003 and 2003-2008 FMP periods. The table was populated with data from RPFO Table 7 for the two previous planning terms (1993-1998 and 1998-2003) and from the 2006-2007 Annual Report Table 7 for the 2003-2008 FMP. It should be noted that no renewal operations occurred in 2007-2008 so the 2003-2008 values represent the total activity for the 5-year period. The future (2008 FMP) renewal targets have also been included for illustrational purposes only.

The table(s) below identify the planned vs. actual renewal operations that occurred on the landbase during each of the planning terms.

1993-1998

Activity	FMP Term 1993-1998		
	Target Level	Actual Level	% Achievement
Natural Regeneration	13,400	3,367	25%
Planting	6,570	8,116	124%
Seeding	500	1,305	261%
Site Preparation	10,147	9,438	93%
Tending	5,303	6,109	115%
Thinning	250	57	23%
Total	**41,207**	**28,392**	

The 1993-1998 information indicates that the area naturally regenerated was relatively low (25% of planned), this low amount of area was a result of the lower than planned harvest levels and the site conditions that prevailed in the harvested areas.

The overachievement of planted and seeded areas (124% and 261% respectively) was directly related to the treatment of backlogged areas from previous Timber Management Plans and the amount of shallow soil sites encountered in the field. These shallow sites required more area to receive the seeding treatment than planned.

Tending occurred on 115% of the planned areas, of this area none of the manual tending occurred but the area aerial chemically tended was greater than planned levels (121% of planned).

The lack of prescribed burn site preparation (15% of planned) is a direct result of increased operating costs associated with changes in MNR policy as well as the 1995 MNR moratorium on prescribed burns.

1998-2003

Activity	FMP Term 1998-2003		
	Target Level	Actual Level	% Achievement
Natural Regeneration	11,100	6,420	58%
Planting	9,487	10,298	109%
Seeding	2,000	1,033	52%
Site Preparation	12,486	10,322	83%
Tending	8,100	8,687	107%
Thinning	2,850	905	32%
Total	**46,032**	**37,665**	

The under achievement of natural regeneration is subsequent to the reduced hardwood harvest on the landbase during this time period. The reduced natural regeneration area can also be attributed to the site conditions that prevailed in the harvested area that provided suitable area for intensive management (109% of planned planting area treated). In addition to this, some of the harvest area was not yet declared as natural regeneration at the time of the 1998-2003 RPFO submission.

The actual site preparation and tending operations are consistent with the planned areas. This consistency is subsequent to all harvested areas that required site preparation were treated and the increase of tending area is related to catching up on backlogged area from previous terms.

The underachievement of the thinning target can be attributed to the results of ground surveys between 1999 and 2002 that revealed stand stocking levels were adequate and that pre-commercial thinning was not required.

2003-2008

Activity	FMP Term 2003-2008		
	Target Level	Actual Level	% Achievement
Natural Regeneration	14,785	9,744	66%
Planting	7,370	4,178	57%
Seeding	2,926	1,544	53%
Site Preparation	11,921	4,817	40%
Tending	7,840	3,746	48%
Thinning	1,000	285	29%
Total	**45,842**	**24,314**	

The actual level of renewal activities during the 2003-2008 period are on average 49% of the planned levels. The reduced activity levels are a direct result of the reduced harvest area. If the target levels are adjusted to reflect the 3 years of operation during the 2003-2008 FMP, the actual % achievement levels are as follows:

Activity	FMP Term 2003-2008		
	Adjusted Target	Actual Level	% Achievement
Natural Regeneration	8,871	9,744	110%
Planting	4,422	4,178	94%
Seeding	1,756	1,544	88%
Site Preparation	7,153	4,817	67%
Tending	4,704	3,746	80%
Thinning	600	285	48%
Total	**28,422**	**24,314**	

As the above table indicates, the natural regeneration, planting and seeding levels approximate those expected from 3 years of depletion.

Additional shortfalls are the result of the indefinite shutdown of the White River operations. The 2006/07 Annual Work Schedule proposed the following activity levels, 1,511 hectares of planting, 357 hectares of seeding, 1,751 hectares of site preparation, and 1,200 hectares of tending. The planting, seeding and site preparation area remains available on the Forest and will be assessed and treated following the resumption of operations. The tending area has been scheduled for treatment in the fall of 2008.

Although only 48% of the planned thinning areas were treated, all the areas that were identified by Domtar Inc. Forestry Staff were treated during the 2003-2008 FMP term. It is assumed that in the up-coming 2008-2018 FMP the amount of thinning will increase, particularity due to the treatment of the area natural regenerated to Pj subsequent to the 1999 Crocker Lake Fire.

With the exception of tending, areas identified in the 2006/07 AWS will be treated once operations at the Domtar Inc. Mill and Woodlands operations re-start. The tending area is scheduled for treatment in 2008.

No protection activities (ie. insect pest control) occurred on the landbase during the 2003-2008 FMP.

Table 6 - SUMMARY REPORT OF RENEWAL, TENDING AND PROTECTION OPERATIONS

	Area Summary of all Forest Units (ha)						
	Past Plan Term 1993-1998		Past Plan Term 1998-2003		Current Plan Term 2003-2008		Future 2008 FMP
	Planned	Actual	Planned	Actual	Planned	Actual	Planned
Renewal							
Regeneration							
Uneven-Aged Management							
Selection Cut - Harvest							
Total Uneven-Aged Management							
Even-Aged Management							
Natural Regeneration							
Clearcut	13052	3367	11100	6420	14785	9744	15171
Strip Cut	348						
Seed Tree Cut							
Uniform Shelterwood Seed Cut							
Subtotal Natural	13400	3367	11100	6420	14785	9744	15171
Artificial Regeneration							
Planting	6570	8116.	9487	10298	7370	4178	6711
Seeding direct	500	799		1033	2926	1544	3371
with site preparation		506	2000				
Scarification							
Subtotal Artificial	7070	9421	11487	11331	10296	5722	10082
Total Even-Aged Management	20470	12788	22587	17751	25081	15466	25253
Total Regeneration	20470	12788	22587	17751	25081	15466	25253
Site Preparation							
Mechanical	5865	8261	10736	7539	11137	4785	10083
Chemical	706	659	1000	2360	784	32	
Prescribed Burn	3576	517	750	423			
Total Site Preparation	10147	9437	12486	10322	11921	4817	10083
Tending							
Cleaning							
manual	266		1000				
chemical - ground				31	784		
- aerial	5037	6109	7100	8656	7056	3746	10083
mechanical							
prescribed burn							
Spacing, pre-commercial thinning, improvement cutting							
even-aged	250	57	2850	905	1000	285	1569
uneven-aged							
Cultivation							
Total Tending	5553	6166	10950	9592	8840	4031	11652
Protection (Insect Pest Control)							
accelerated harvest							
salvage							
manual protection							
ground insecticide							
aerial insecticide							
Total Protection							

Source: 1993-1998 and 2998-2003 FMP - RPFO 7
2003-2008 FMP - 2006/07 AR Table 7
2008 -2018 FMP (Phase 1 Planned Area) - FMP 21 Phase 1 (for illustrational purposes only)

1
2
3

8.0 Harvest Area Successfully Regenerated

Table 7 and the corresponding graph summarize the area harvested during the 1993-1998 TMP period, as well as the area surveyed for regeneration success during the 2003-2008 FMP. The 1993-1998 harvest area was utilized to address the time lag (10 year) that occurs prior to the point when regeneration is assessed for success (refer to IFA Process and Protocol document, page C-4).

The table indicates that during the 2003-2008 FMP period, 28,637 ha of area was assessed for regeneration success. The assessed area exceeds the 1993-1998 harvest levels by 11,262 ha. This would equate to 65% more land being assessed than what was depleted. This over achievement is due to depletions from the early phases of the 1998-2003 FMP being assessed in the 2003-2008 period as well.

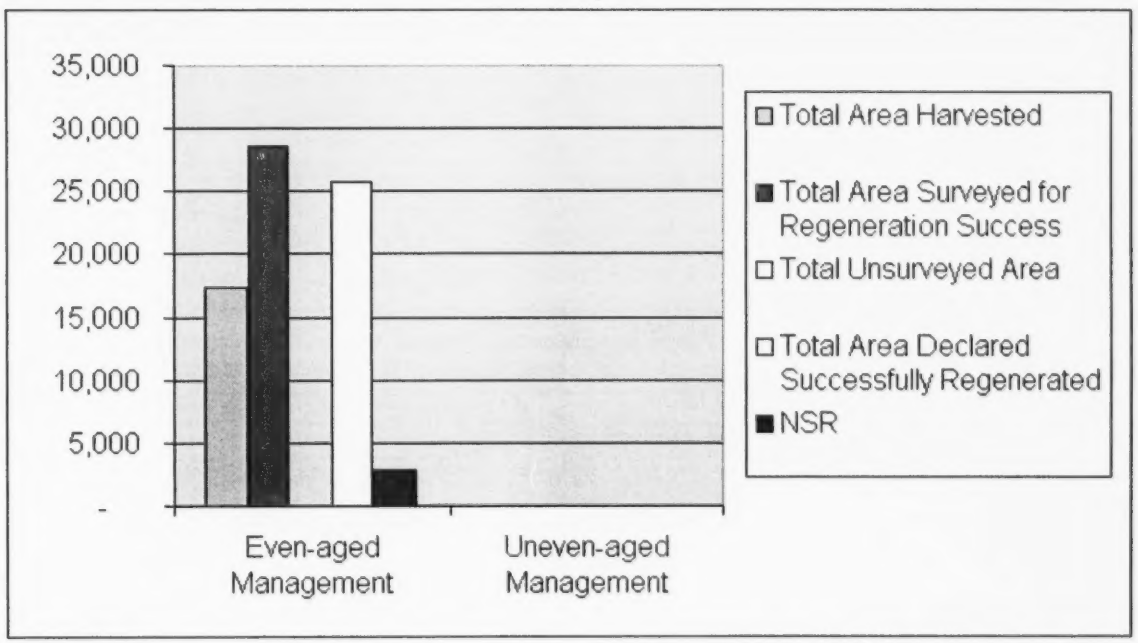
Of the assessed area, the table indicates that 89.8% of the area surveyed met regeneration standards and of this area 9,418.6 ha (37%) returned to the projected forest unit.

The area (2,912 ha) that was not declared successfully regenerated (i.e NSR) results from insufficient stocking and/or lacked the height requirements to be declared free-to-grow (FTG). The areas that were not declared as FTG will be resurveyed and/or treated in the future to ensure the appropriate regeneration of the landbase.

Upon review of the silvicultural records (Domtar Inc. digital information) none of the surveyed area was identified as B&S or not successfully regenerated due to stocking, loss to roads etc.

Table 7 - Harvested Area Successfully Regenerated - Summary of All Forest Units

	AREA IN HECTARES (All Forest Units Combined)	***AREA IN HECTARES (All Forest Units Combined)***
	Even-aged Management	**Uneven-aged Management**
Total Area Harvested	17,375	-
Total Area Surveyed for Regeneration Success	28,637	-
Total Unsurveyed Area	-	-
Total Area Declared Successfully Regenerated	25,725	-
Total Area Surveyed Not Successfully Regenerated	-	-
NSR	2,912	-
B&S	-	-
Not Available for Regen. (eg. Roads & landings)	-	-
Other	-	-
Percent of Area Surveyed Declared Successfully Regenerated	89.8%	



Source:
Total area harvested: RPFO-1 for the 1993-1998 TMP
Survey results: 2006/07 AR Table 14 and Silvicultural Records

Appendix B: Audit Team Members and Qualifications

The IFAPP identified the following qualifications for Audit Teams:

Lead Auditor:

- must have a minimum of 7 years recent and relevant experience in forest management and forest operations, in similar types of forests, preferably in Ontario;
- must be trained in auditing procedures and have current forest auditing experience; and
- ideally is certified as an environmental auditor.

Audit Team:

- minimum of two people with experience in forest management planning and forest operations;
- a minimum of one wildlife biologist and/or ecologist;
- minimum of one person with experience in assessing: socioeconomic profiles and the social and economic impacts which may result from forest management planning decisions; public consultation processes in the context of forest management; and First Nations involvement in forest management planning;
- for each individual, minimum of 7 years recent and relevant experience in forest management and forest operations in similar forest types, preferably in Ontario;
- ideally, some Audit Team members will be certified as environmental auditors;
- at least one member of the Audit Team must have demonstrated experience and/or training in the requirements of the FMPM including the strategic direction and determination of sustainability component;
- at least one member of the Audit team shall be a Registered Professional Forester; and
- team size is a minimum of three.

The team for this audit, described in Table B - 1 below, included six people in the following positions: Lead Auditor and Harvesting and Modeling Forester, Wildlife and Roads Expert, Silviculturalist (2), Planning Auditor, and Consultation Auditor.

Table B - 1. The Roles, Responsibilities, and Qualifications of the Audit Team

Name/Company	Role	Responsibilities	Credentials
Dr. Jeremy Williams, RPF ArborVitae Environmental Services Ltd.	Lead Auditor, Harvesting and Modeling Forester, First Nations Consultation	• overall audit coordination; • oversee activities of other team members; • liaise with Company & MNR; • review and inspect harvesting records and practices; • review aspects of forest management related to forest economics and social impacts • reviews FMP modeling inputs and activities • review documentation and interview company, MNR staff and First Nations reps	B.Sc.F., Ph.D. (Forest Economics); 16 years consulting experience in Ontario related to forest management, planning, wood supply modeling, and forest economics; participated in 18 previous IFA assignments; certified as an auditor by the Quality Management Institute.
Mr. Chris Wedeles ArborVitae Environmental Services Ltd.	Wildlife and Roads Auditor; Local Citizens' Committee	• review and inspect Areas of Concern Documentation and Practices; • review and inspect aspects of forest management related to environmental practices and wildlife management integration; • review and inspect access and water crossings • review documentation and interview company, MNR staff and LCC reps	B.Sc., M.Sc. (Wildlife Biology); 20 years wildlife and forest ecology and experience in Ontario; completed almost 30 previous independent forest audits; certified as an auditor by the Quality Management Institute.
Mr. Robert Arnup	Boreal and Mixed Silviculturist	• review and inspect silvicultural practices and related documentation; • review and inspects selected environmental aspects of forest management	M.Sc. Senior forest ecologist with 25 years' experience in silviculture, ecosystem-based forest management applications and environmental consulting in boreal Canada and elsewhere
Mr. Nick Baggs, RPF NGB Forest Management Consulting	Planning Auditor	• review FMP and related documents to ensure compliance with FMPM and other regulations; • review plan development process for conformity with FMPM	B.Sc.F., R.P.F. 19 years experience in silviculture; experienced in planning and overseeing forestry operations in Northeastern Ontario; extensive experience in writing forest management plans forest auditing and, ecosystem-based management applications and environmental consulting.

Appendix C: Independent Forest Audit Guiding Principles

The IFAPP identifies several components of the audit process. The audit protocol constitutes the main framework for the audit. There are eight principles within the audit protocol (Table C - 1). Each principle contains a series of criteria which, if met, will result in the principle being achieved. For each criterion, a number of procedures are used to assess the auditees' compliance and effectiveness.

Table C - 1. The Eight Principles Underlying the Audit Protocol, as noted in the IFAPP.

1. Commitment
Commitment is reflected in vision, mission and policy statements of the company and adherence to legislation and policies. Vision and mission statements are intended to provide long-term guidance for the organization. Policy statements reflect how the organization's vision and mission will be achieved. These statements must be reflected in the day-to-day operations of the organization.

2. Public Participation
The process of sustainable forest management planning, implementation and monitoring must be conducted in an open consultative fashion, with the involvement of the Local Citizens Committee, Aboriginal communities, and other parties with an interest in the operations of the forest management unit.

3. Forest Management Planning
The forest management planning process involves input from all members of the planning team as well as public consultation and Aboriginal involvement to describe the current forest condition, values and benefits to be obtained from the forest, the desired condition of the forest in the future, and the best methods to achieve that goal. Planning requirements have been established which must be followed by all forest management units.

4. Plan Implementation
Verification of the actual results of operations in the field compared to the planned assumptions and planned operations is required to be able to assess planning as well as the effective achievement of plan objectives and compliance with laws and regulations.

5. System Support
System support concerns resources and activities needed to support plan development and implementation so as to achieve the desired objectives. The organization's human resources and information management systems must support sustainable forest management.

6. Monitoring
Monitoring programs must be developed and implemented to assess compliance and effectiveness of operations in relation to the FMP, laws and regulations. Operations must be reported regularly and reporting must examine the effectiveness of these operations in achieving management objectives.

7. Achievement of the Management Objectives and Forest Sustainability
Periodic assessments of the forest management unit operations must be made in order to determine whether management objectives, including forest sustainability objectives, are being achieved. This includes comparing the values of the planned indicators against the actual values and assessing the reasons for any significant deviations.

8. Contractual Compliance
The licensee must comply with the specific licence requirements. Specific requirements, when relevant to MNR, must be followed.

Appendix D: List of Acronyms

ACOP	Annual Compliance Operations Plans
ACC	Area of Concern
AHA	Available Harvest Area
AR	Annual Report
AWS	Annual Work Schedule
B.Sc.F	Bachelor of Science in Forestry
CFSA	Crown Forest Sustainability Act
CLAAG	Careful Logging Around Advance Growth
Class EA	Class Environmental Assessment for Timber Management on Crown Lands in Ontario
CLUAH	Crown Land Use Atlas Harmonization
CLUPA	Crown Land Use Policy Atlas
CMP	Contingency Management Plan
COSEWIC	Committee on the Status of Endangered Species in Canada
DFCC	Desired Future Forest Condition
DM	District Manager
EBR	Environmental Bill of Rights
EDO	Economic Development Officer
EMS	Environmental Management System
FIM	Forest Information Manual
FLORA	Final List of Required Alterations
FMP	Forest Management Plan
FMPM	Forest Management Planning Manual
FOIP	Forest Operations Inspections Program
FOIR	Forest Operations Inspection Report
FOP	Forest Operations Prescription
FRI	Forest Resource Inventory
FRT	Forest Renewal Trust
FRWI	Forest Roads and Watercrossings Initiative
FTG	Free-to-Grow
GIS	Geographic Information System
GPS	Global Positioning System
ha	Hectares
HPCHV	High Potential Cultural Heritage Values
km	kilometres
ICWC	In compliance with comments
IEA	Individual Environmental Assessment
IFA	Independent Forest Audit
IFAPP	Independent Forest Audit Process and Protocol
INAC	Indian and Northern Affairs Canada
ISO	International Standards Organization
IWA	international Woodworkers of America
LCC	Local Citizens Committee
LTMD	Long Term Management Direction
m^3	cubic meters
MAI	Mean Annual Increment
MNR	Ontario Ministry of Natural Resources
MNR-NER	Northeast Region, Ministry of Natural Resources

MOEE	Ministry of the Environment and Energy
MSP	Management System Procedures
NDPEG	Natural Disturbance Pattern Emulation Guide
NIC	Not in Compliance
NRVIS	Natural Resource Values Information System
NSR	Not Satisfactorily Regenerated
OBM	Ontario Base Map
OFA	Ontario Forest Accord
OL	Overlapping Licence or Overlapping Licensee
PLORA	Preliminary List of Required Alterations
PRDC	Pic River Development Corp
Q10	Once-in-10-year maximum flow conditions
Q25	Once-in-25-year maximum flow conditions
RA	Required Alterations
RBT	Resource-based Tourism
RD	Regional Director
RPF	Registered Professional Forester
RPFO	Report of Past Forest Operations
RSA	Resource Stewardship Agreement
SGR	Silvicultural Ground Rule
SEIM	Socio-Economic Impact Model
SFI	Sustainable Forestry Initiative
SFL	Sustainable Forest Licence
SFM	Sustainable Forest Management
SFMM	Strategic Forest Management Model
SGR	Silvicultural Ground Rules
SMA	Selected Management Alternative
SOP	Standard Operating Procedure
TOR	Terms of Reference
USA	United Steelworkers of America
WI	Work Instruction
WRACC	White River Area Co-Management Committee
WRF	White River Forest

Appendix E Summary of Input to the Audit Process

General Public/Other Stakeholders

Three approaches (in addition to interviewing LCC members) were used to encourage the public to provide input into the audit: 1) a sample of approximately 300 individuals/ organizations on the MNR's FMP mailing list were sent a brief questionnaire asking for their views on the management of the forest; and 2) advertisements were placed in four regional newspapers (from Wawa, Hornepayne, Manitouwadge, and Marathon) and the First Nation-based Wawatay News soliciting input; and 3) we held a public meeting, organized with the assistance of WRACC, during the audit site visit.

There were no responses received to the mail out and the advertisements, which is the first time this has happened in our experience.

In contrast, the public meeting was very successful. The meeting was held in White River, and was in lieu of a meeting with the lead auditor and consultation auditor with the LCC. There were approximately six WRACC members and about 15 other people present, and the discussion touched on most of the major issues and concerns that surfaced during the audit. There was great concern concerning the loss of employment in the community and this extended to concerns about the impact of any reductions in silvicultural activity. Access was also a key concern, with the majority of speakers disagreeing with any restrictions on the use of forest roads.

Attendees at the meeting were asked to complete questionnaires similar to those used in mail-out. We received several responses. Among the concerns identified were:

- the cessation of road maintenance;
- lack of tree planting;
- consternation over access restrictions; and
- concerns over mill shut down.

These topics are dealt with in the audit report, although as noted earlier, the issue of the mill shut-down is beyond the scope of the audit.

The audit team contacted both commitment holders, Columbia Forest Products and Weyerhaeuser Wawa, and was able to speak with a representative from Weyerhaeuser. He felt that the relationship between Domtar and his company had worked reasonably well, noting that the restrictions created by the union agreement were inconvenient but that Domtar started to make direct deliveries to the Limer mill shortly before it stopped taking wood from the WRF. The review of the extent to which wood supply commitments were met can be found in section 3.8.3.

Finally, the lead auditor attended part of a workshop that the MNR District was hosting on tourism, and heard about some of the difficult issues that the tourism sector is facing.

Local Citizens' Committee

We interviewed or had discussions with ten members of the WRACC. The topics which arose most frequently were the implications of the mill shut-down on the community, and access restrictions on the Forest. Other discussions included:

- the support provided to the Committee by the MNR and Domtar;

- concerns of financing of the Committee;
- concerns regarding MNR's aspirations to amalgamate the committee with other LCC's;
- frustration over the CLUAH process;
- impacts of harvesting on wildlife; and
- effectiveness of the Committee's meetings.

In addition to the interviews, LCC representatives participated in the pre-audit meeting and the closing meeting which took place at the end of the site visit. Several WRACC members attended the public meeting described above. Later in the audit process, after submission of the draft audit report, the Lead Auditor presented on the audit results to WRACC in White River.

Native Communities

The lead auditor, who was also the First Nations consultation auditor, mailed introductory letters to the chief of each of the four First Nations and the Hornepayne Aboriginal community that explained the purpose and schedule of the audit and requested an interview. The District MNR Native Liaison officer was also consulted to discuss the most effective ways of engaging the participation of the Aboriginal communities.

The audit team was fortunate that it was able to speak with four of the five First Nations in or adjacent to the White River Forest, which is a high level of participation in our experience. The lead auditor met with representatives of Pic River Development Corp and Michipicoten First Nations and spoke by telephone with representatives of Pic Mobert First Nation and the Hornepayne Aboriginal community, which is not recognized as a First Nation by the Canadian government. There was no response from Missinabie First Nation to the initial letter or the follow up phone calls and e-mails from the auditors.

Pic Mobert and Pic River First Nations updated the auditor regarding the economic developments and harvesting operations that are taking place on the White River Forest. At the time of the audit, these were the only groups operating on the Forest. Both recognized the efforts of the MNR to secure their access to the resource, and expressed interest in building up a more extensive operation. Both felt that the forest management planning process worked well, and were active participants on the planning team and at the two Community Information centres that were held in each community. In general, both were pleased with the progress that had been made over the audit period and looked forward to being able to develop further economic opportunities.

Michipicoten First Nation has traditionally been most focused on the Algoma Forest, within which their reserve is located. However, they have periodically met with the Wawa MNR District Manager to explore opportunities for timber harvesting and other forest-based economic opportunities on the White River Forest, but have never had much success. The Chief reiterated his desire to develop opportunities on the Forest, especially in the current situation where Domtar has indefinitely suspended operations on the forest.

The Hornepayne community is also interested in economic opportunities, but has little expertise in forestry. This was one of the main points made by the person I spoke with,

who questioned how it is reasonable under the circumstances to expect the community to participate on the planning team and in other aspects of planning and management.

SFL Holder

Numerous discussions were held with staff of Domtar prior to, during, and following the site visit week. Main discussion topics included:

- the status of forest operations on the White River Forest, especially silvicultural and tending activities since timber harvesting by the company was suspended;
- the sufficiency of funds in the Forest Renewal Trust to undertake current silvicultural obligations on the Forest;
- the key decisions, and supporting analyses, that were made during the development of the 2008 FMP;
- the improvement in the relationship with Pukaskwa National Park, and the implications of some of the access restrictions in the vicinity of the Park;
- the relationship between the Company and MNR;
- First Nations involvement and participation in planning and forest harvesting; and
- road construction and maintenance practices.

Other topics related to the above were also discussed with the Company throughout the audit process.

Ministry of Natural Resources

The Audit Team members had extensive discussions with many MNR staff during the course of the audit, especially at the District level. Some regional staff were also contacted for their perspectives on issues that arose during this audit.

Discussions with District and Regional MNR staff covered many of the same topics that were discussed with the Company, and have been extensively discussed throughout the audit report. The MNR perspectives regarding the issues described above were usually somewhat different from the Company's, reflecting the MNR's role in forest management rather than any disagreements with the Company. On the most important issues, MNR and the Company are in general agreement.

Additional areas of discussion included MNR handling of WRACC, and the issues that have come up during the course of the audit team, MNR's efforts to support First Nations economic activity and participation in planning, and the Crown Land Use Atlas Harmonization (CLUAH) project. There was also some discussion regarding the status of caribou on the forest and the on-going access issues.